



DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

49 CFR Part 227

[Docket No. FRA-2009-0044, Notice No. 2]

RIN 2130-AC14

Emergency Escape Breathing Apparatus Standards

AGENCY: Federal Railroad Administration (FRA), Department of Transportation (DOT).

ACTION: Supplemental notice of proposed rulemaking (SNPRM).

SUMMARY: FRA is proposing to amend its regulations related to occupational noise exposure in three ways. First, in response to a Congressional mandate, FRA is proposing to expand those regulations to require that railroads provide an appropriate atmosphere-supplying emergency escape breathing apparatus to every train crew member and certain other employees while they are occupying a locomotive cab of a freight train transporting a hazardous material that would pose an inhalation hazard in the event of release during an accident. Second, FRA is proposing to change the name of this part of its regulations from “Occupational Noise Exposure” to “Occupational Safety and Health in the Locomotive Cab” to reflect the additional subject matter of this SNPRM and to make other conforming amendments. Third, FRA is proposing to remove the provision stating the preemptive effect of this part of FRA’s regulations because it is unnecessary.

DATES: Written comments on the proposed rule must be received by [INSERT DATE 90 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*]. FRA will consider comments received after that date to the extent practicable.

ADDRESSES: Comments related to Docket No. FRA–2009–0044, Notice No. 2, may be submitted by going to <https://www.regulations.gov> and following the online instructions for submitting comments.

Instructions: All submissions must include the agency name and docket number (FRA-2009-0044) or Regulatory Identification Number (RIN) for this rulemaking (2130–AC14). All comments received will be posted without change to <http://www.regulations.gov>; this includes any personal information. Please see the Privacy Act heading in the **SUPPLEMENTARY INFORMATION** section of this document for Privacy Act information related to any submitted comments or materials.

Docket: For access to the docket to read background documents or comments received, go to <https://www.regulations.gov> and follow the online instructions for accessing the docket.

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SUPPLEMENTARY INFORMATION:

Abbreviations and Terms Used in this Document

AAR—Association of American Railroads

AIHA—American Industrial Hygiene Association

ANSI— American National Standards Institute

ASLRRA—American Short Line and Regional Railroad Association

BLET—Brotherhood of Locomotive Engineers and Trainmen

BNSF—BNSF Railway Company

BS—British Standards Institution

CEN—European Committee for Standardization

CFR—Code of Federal Regulations

CO₂—carbon dioxide

DOT—U.S. Department of Transportation

EEBA—emergency escape breathing apparatus

EN—European standard

FRA—Federal Railroad Administration

FRSA—the former Federal Railroad Safety Act of 1970, repealed and reenacted as positive law primarily at 49 U.S.C. ch. 201

HMIS—Hazardous Materials Information System

IDLH—immediate danger to life or health or immediately dangerous to life or health

IFRA—Initial Regulatory Flexibility Analysis

ISEA—International Safety Equipment Association

ISO—International Organization for Standardization

LBIA—the former Locomotive (Boiler) Inspection Act, repealed and reenacted as positive law in 49 U.S.C. 20701-20703

LPG—liquefied petroleum gas

NIOSH—National Institute for Occupational Safety and Health

NPRM—notice of proposed rulemaking

NS—Norfolk Southern Railway Company

NTSB—National Transportation Safety Board

O₂—Oxygen

OMB—Office of Management and Budget

OSHA—Occupational Safety and Health Administration

PHMSA—Pipeline and Hazardous Materials Safety Administration

PIH material—poison inhalation hazard material

ppm—parts per million

PTC—positive train control

RCO—remote control operator

RFID—radio frequency identification

RIA—Regulatory Impact Analysis

RSIA—Rail Safety Improvement Act of 2008, Pub. L. 110-432, Division A

SBA—Small Business Administration

SCBA—self-contained breathing apparatus

SCSR—self-contained, self-rescuer

T&E employees—train and engine service employees

UP—Union Pacific Railroad Company

UTU—United Transportation Union

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- I. Executive Summary**

A. Purpose of Regulatory Action

After fatalities resulting from the inhalation of chlorine gas following rail accidents in 2004 and 2005, the NTSB issued a recommendation that FRA require railroads to provide emergency escape breathing apparatuses (EEBAs) to their crewmembers.¹ Subsequently, in October 2008, Congress enacted the RSIA.² Section 413 of the RSIA mandated that FRA issue regulations requiring railroads to provide EEBA, and training in their use, for train crews in the locomotive cabs of any freight train transporting a hazardous material in commerce that would present an inhalation hazard in the event of a release. The

¹ NTSB Recommendation R-05-17.

<https://www.nts.gov/investigations/AccidentReports/Reports/RAR0504.pdf>.

² Pub. L. 110-432, Div. A, 122 Stat. 4848, October 16, 2008 (49 U.S.C. 20166).

purpose of this SNPRM is to respond to that statutory mandate, and it would also respond to NTSB Safety Recommendation R-05-17.

FRA first issued an NPRM responsive to the mandate of Section 413 in October 2010.³ Based on the cost-benefit analysis in the NPRM, and the comments received in response to the NPRM, FRA issued a guidance document⁴ rather than a final rule. FRA intended for railroads to use the guidance document to develop EEBA programs to protect railroad employees involved in transporting hazardous materials posing an inhalation hazard. However, NTSB found that the guidance document did not satisfy its recommendation, and the statutory mandate remains in place. Accordingly, FRA is issuing this SNPRM, with some revisions to the NPRM, to open the matter again to public comment and continue towards a final rule as required by statute.

B. Summary of Major Provisions

This SNPRM proposes to amend subpart C of 49 CFR part 227 to require any freight railroad transporting a hazardous material that would pose an inhalation hazard if released during an accident to provide certain employees an appropriate atmosphere-supplying EEBA when occupying a locomotive cab. For reasons explained below, in FRA's response to public comments, FRA has decided that the primary concern in establishing the requirement for the provision of EEBA should be focused on hazards that can result in poisoning through inhalation. This does not include simple asphyxiants but does include hazardous materials that PHMSA identifies as "materials poisonous by inhalation," which are commonly referred to as "PIH materials" and are defined by PHMSA's Hazardous Materials Regulations as: (1) a gas meeting the defining criteria in 49 CFR 173.115(c) (i.e., Division 2.3 - Gas poisonous by inhalation) and assigned to

³ 75 FR 61386 (Oct. 5, 2010).

⁴ Federal Railroad Administration Guidance for Developing an Atmosphere-Supplying Emergency Escape Breathing Apparatus Program (Dec. 2016). <https://railroads.dot.gov/elibrary/federal-railroad-administration-guidance-developing-atmosphere-supplying-emergency-escape>.

Hazard Zone A, B, C, or D in accordance with 49 CFR 173.116(a); (2) a liquid, other than a mist, meeting the defining criteria regarding inhalation toxicity in 49 CFR 173.132(a)(1)(iii) and assigned to Hazard Zone A or B in accordance with 49 CFR 173.133(a); or (3) any material identified as an inhalation hazard by a special provision in column 7 of the table in 49 CFR 172.101.⁵

PIH materials that are regularly carried by railroads include chlorine gas, anhydrous ammonia, ethylene oxide, and anhydrous hydrofluoric acid. Together these four products make up over 90 percent of PIH material shipments by rail. Such commodities are readily identifiable by train crews, both because a “rail car transporting any quantity of a hazardous material (including either a load or the residue⁶ of one of these covered materials) must be placarded on each side and each end” pursuant to the requirements of 49 CFR 172.504 and because train crews “must have a copy of a document for the hazardous material being transported” that provides details of the hazardous material pursuant to 49 CFR 174.26. A car transporting a Class 2, Division 2.3 material, must have “POISON GAS” placards⁷ and a car carrying any of the subset of Class 6, Division 6.1 materials that is a “material poisonous by inhalation” must have “POISON INHALATION HAZARD” placards, except that “[f]or domestic transportation, a POISON INHALATION HAZARD placard is not required on a transport vehicle [including a rail car] or freight container that is already placarded with the POISON GAS placard.”⁸ As a result, when a train crewmember observes a car placarded POISON GAS or POISON INHALATION HAZARD while the car is part of his or her train, the crewmember will know that EEBAs must be provided to covered

⁵ 49 CFR 171.8.

⁶ “Residue means the hazardous material remaining in a packaging, including a tank car, after its contents have been unloaded to the maximum extent practicable and before the packaging is either refilled or cleaned of hazardous material and purged to remove any hazardous vapors.” 49 CFR 171.8.

⁷ 49 CFR 172.540.

⁸ Class 6, Division 6.1 materials other than material poisonous by inhalation must be placarded “POISON.” See 49 CFR 172.504, Table 2, and section on placard design at 49 CFR 172.554. 49 CFR 172.555 and 49 CFR 172.504(f)(8).

employees occupying the locomotive cab prior to the train beginning its movements. EEBAAs are intended to protect covered employees from the risk of exposure to such hazardous materials during the period while the employees are in the locomotive cab or escaping from a hazardous materials release posing an inhalation hazard.

This SNPRM also proposes railroads that transport a PIH material on the general railroad system of transportation establish and carry out programs for: selection, procurement, and provision of EEBAAs; inspection, maintenance, and replacement of EEBAAs; and instruction of employees in the use of EEBAAs. Railroads would be required to identify individual employees or positions to be placed in their general EEBA programs so that a sufficient number of EEBAAs are available and to ensure that the identified employees or incumbents of the identified positions know how to use the devices. This SNPRM would require railroads provide for storage of EEBAAs in locomotive cabs to enable employees to access the apparatus quickly in the event of a release of a hazardous material that poses an inhalation hazard.

Because the proposals in this SNPRM would add a new subpart to 49 CFR part 227, FRA is also proposing conforming changes, minor corrections, and updates to the existing provisions of part 227. Further, FRA is removing the provision at 49 CFR 227.7 on the preemptive effect of part 227 as it is unnecessary because it is duplicative of statutory law at 49 U.S.C. 20106 and case law. *See Napier v. Atlantic Coast Line R.R.*, 272 U.S. 605, 613; 47 S.Ct. 207, 210 (1926).

C. Costs and Benefits

FRA analyzed the economic impact of this SNPRM. FRA estimated the costs estimated to be incurred by railroads and the benefits of fewer injuries to crewmembers from PIH material releasing after an accident/incident.

FRA is proposing a rule that would enable covered employees in locomotive cabs, whose freight train is transporting PIH materials, to wear EEBAAs in the event of a release

of such materials. This proposed rule would require that an EEBA be provided for each covered employee in a locomotive cab on a freight train transporting any PIH material. These EEBA's would provide neck and face coverage with respiratory protection for these covered employees. As proposed, railroads must also ensure that the equipment is maintained and in proper working condition. Finally, railroads would be required to train covered employees on the use of the EEBA's. The main objective of this proposed rule is to protect to protect covered employees from the risk of exposure to PIH materials while the employees are in the locomotive cab or escaping from a hazardous materials release posing an inhalation hazard.

Details on the estimated costs of this SNPRM can be found in the RIA, which FRA has prepared and placed in the docket (FRA-2009-0044). The RIA presents estimates of the costs likely to occur over the first 10 years of the proposed rule. The analysis includes estimates of costs associated with the purchase of EEBA's and installation, employee training, and recordkeeping.

FRA has estimated costs for three options that are permissible under the rule.

These include:

- Option 1: Employee Assignment – EEBA's are assigned to all covered employees and considered part of their equipment.
- Option 2: Locomotive Assignment – EEBA's are assigned to and kept in locomotives.
- Option 3: Equipment Pooling – EEBA's are pooled at rail yards and kept in storage lockers where employees would check-in and check-out the EEBA when PIH is being hauled.

For all three options, FRA developed estimates using a closed-circuit EEBA.⁹ For the “Employee Assignment” option, FRA estimates that the costs associated with issuing each T&E employee (\$60,000) with an EEBA as their own personal equipment. The

⁹ A closed-circuit EEBA is a device designed for use as respiratory protection during entry into hazardous atmospheres that can be immediately dangerous to life and health and are described as an apparatus of the type in which the exhaled breath is rebreathed by the wearer after the CO₂ has been effectively removed and oxygen concentration restored to suitable levels.

“Locomotive Assignment” option would require installing EEBA devices in all locomotives in a railroad’s fleet, regardless of whether a locomotive is part of a train that is transporting PIH material. There are approximately 24,000 locomotives owned by Class I railroads, and FRA estimates that at least three apparatus would have to be installed in each locomotive, one apparatus each for the conductor, the engineer, and an additional covered employee. In the “Equipment Pooling” option, FRA considered only having EEBA’s provided in trainsets that were transporting PIH. EEBA’s would be brought on board after a determination is made on a case-by-case basis.

FRA estimates the 10-year costs of the proposed rule to be between \$27.1 million to \$91.6 million, discounted at 7 percent. The following table shows the total costs of this proposed rule, over the 10-year analysis period.

Total 10-Year Costs (2021 Dollars)¹⁰

Category	10-Year Cost (\$)	Present Value 7% (\$)	Present Value 3% (\$)	Annualized 7% (\$)	Annualized 3% (\$)
Option 1: Employee Assignment	\$92,006,767	\$78,979,882	\$85,771,368	\$11,244,958	\$10,055,021
Option 2: Locomotive Assignment	\$106,793,579	\$91,611,301	\$99,524,731	\$13,043,388	\$11,667,335
Option 3: Equipment Pooling	\$33,527,842	\$27,100,467	\$30,398,108	\$3,858,497	\$3,563,586

The SNPRM is expected to improve railroad safety by ensuring that all covered employees in locomotives on freight trains transporting PIH material can safely vacate the exposed area if a PIH material release were to occur. The primary benefits include heightened safety for covered employees and, as a result, earlier awareness/notification to the public of any catastrophic release of a PIH material. Implementation of the SNPRM

¹⁰ Numbers in this table and subsequent tables may not sum due to rounding.

should mitigate the injuries to covered employees from PIH material releasing after an accident/incident. During a 10-year period, this analysis finds \$43,110 (PV, 7 percent) in safety benefits could accrue through injury prevention.

Category	10-Year Benefits (\$)	Present Value 7% (\$)	Present Value 3% (\$)	Annualized 7% (\$)	Annualized 3% (\$)
Total Benefits from Injury Prevention	\$63,720	\$43,110	\$53,520	\$6,138	\$6,274

II. Statutory Authority

Section 413 of the RSIA mandates that the Secretary of Transportation (Secretary) adopt regulations requiring railroads to provide EEBA's for the train crews in the locomotive cabs of any freight train transporting a hazardous material in commerce that would present an inhalation hazard in the event of a release. Specifically, the statute instructs the Secretary to prescribe regulations requiring railroads to: (1) ensure that EEBA's affording suitable "head and neck coverage with respiratory protection" are provided "for all crewmembers" in a locomotive cab on a freight train transporting "hazardous materials that would pose an inhalation hazard in the event of a release;" (2) provide a place for convenient storage of EEBA's in the locomotive that will allow "crewmembers to access such apparatus quickly;" (3) maintain EEBA's "in proper working condition;" and (4) provide crewmembers with appropriate instruction in the use of EEBA's. The Secretary has delegated the responsibility to carry out his responsibilities under this section of the RSIA to the Administrator of FRA. 49 CFR 1.89(b).

Additionally, FRA is issuing this SNPRM under the authority of 49 U.S.C. 20103 and 49 U.S.C. 20701-20703, as delegated to the Administrator of FRA pursuant to 49 CFR 1.89(a).

III. Background

A. Accident History and NTSB Recommendation R-05-17

As noted in the 2010 NPRM, historical data suggests limited train crew injuries and fatalities related to the catastrophic release of a PIH material; in the last decade (2012 to 2021), there were no PIH-related fatalities of T&E personnel, and only two injuries, both of which resulted in symptoms due to one-time inhalation exposure to airborne contamination.

While rail accidents involving the release of PIH materials are S as demonstrated by the June 2004 rail accident in Macdona, Texas, and the January 2005 accident in Graniteville, South Carolina, such accidents can be deadly to both the crew members involved and others in the vicinity. Both the Macdona and Graniteville accidents involved the release of a PIH material (chlorine) and both accidents resulted in the deaths of crewmembers.

The collision near Macdona occurred on June 28, 2004. According to the NTSB's report,¹¹ a westbound freight train traveling on the same main line track as an eastbound freight train struck the midpoint of the 123-car eastbound train as it was leaving the main line to enter a parallel siding. The collision derailed the 4 locomotive units and the first 19 cars of the westbound train as well as 17 cars of the eastbound train. As a result of the derailment and pileup of railcars, the 16th car of the westbound train, a pressure car loaded with liquefied chlorine, was punctured. Chlorine escaping from this car immediately vaporized into a cloud of chlorine gas that engulfed the accident area to a radius of more than 700 feet. Three people, including the conductor of the westbound train and two local residents, died as a result of chlorine gas inhalation.

The Graniteville accident occurred on January 6, 2005, when a freight train encountered a switch that had been improperly lined. The improperly lined switch diverted the train from the main line onto an industry track. Once on the industry track,

¹¹ "Collision of Union Pacific Railroad Train MHOTU-23 With BNSF Railway Company Train MEAP-TUL-126-D With Subsequent Derailment and Hazardous Materials Release, Macdona, Texas, June 28, 2004," Railroad Accident Report NTSB/RAR-06/03, Washington, DC.

the train struck an unoccupied, parked train. The collision resulted in the derailment of two locomotives and 16 freight cars on the diverted train, as well as the locomotive and one of the two cars of the parked train. There were three tank cars containing chlorine among the derailed cars on the diverted train. One of the cars containing chlorine was breached causing a release of chlorine gas, which resulted in the train engineer and eight other people dying from chlorine gas inhalation.¹²

Following the Macdona and Graniteville accidents, the NTSB issued Safety Recommendation R-05-17 to FRA recommending that FRA determine the most effective methods of providing emergency escape breathing apparatus for all crewmembers on freight trains carrying hazardous materials that would pose an inhalation hazard in the event of unintentional release, and then require railroads to provide those breathing apparatus to their crewmembers along with appropriate training.

B. FRA Sponsored Study

In response to NTSB Safety Recommendation R-05-17, FRA commissioned a study of EEBA's in cooperation with the railroad industry and railroad labor. As part of the study, FRA compiled factual information, performed technical, risk, and economic analyses, and made recommendations on "the use of [EEBA's] by train crews who may have exposure to hazardous materials [that] would pose an inhalation hazard in the event of unintentional release." The study, published in 2009, provided information and recommendations on the use of EEBA's by train crews who may be exposed to hazardous materials that pose inhalation hazards. The study concluded that railroads should consider using EEBA's on trains transporting hazardous materials that pose an inhalation hazard.¹³ Part of the preamble to this proposed rule draws from the study; however, after

¹² "Collision of Norfolk Southern Freight Train 192 With Standing Norfolk Southern Local Train P22 With Subsequent Hazardous Materials Release at Graniteville, South Carolina, January 6, 2005," Railroad Accident Report NTSB RAR-05/04, Washington, DC.

¹³ See "Emergency Escape Breathing Apparatus," FRA Office of Research and Development, Final Report, May 2009, which is posted at https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/1419/ord0911.pdf.

further consideration of the issues involved and consultation with representatives of the railroad industry and railroad labor (as discussed under “Section VII. Information and Recommendations Provided by the Railroad Industry and Railroad Labor Organizations after the Study”), FRA has come to different conclusions on a number of matters. These matters include the minimum breathing time that EEBA’s should provide, the analysis of different methods of distribution of the devices, and the costs and benefits of various EEBA alternatives.

C. FRA’s 2016 Guidance for Developing an EEBA Program

In December 2016, FRA published, in the absence of a final rule, Guidance for Developing an EEBA Program.¹⁴ This provided guidance to railroads for developing and implementing an individualized EEBA program to protect their crewmembers. The guidance highlights factors to consider when selecting an appropriate EEBA and explains various components to evaluate when developing an EEBA program. However, FRA is unaware of any railroad that has developed an EEBA program or made EEBA’s generally available to their crewmembers.

IV. Selection of the Appropriate EEBA by Railroads

As explained in the 2010 NPRM, EEBA’s are “respirators” and generally there are two different types of respirators: air purifying and atmosphere-supplying. Air-purifying respirators remove specific air contaminants by passing ambient air through an air-purifying element, such as an air-purifying filter, cartridge, or canister. Atmosphere-supplying respirators supply breathing air from a source independent from the ambient atmosphere. Types of atmosphere-supplying respirators include airline supplied-air respirators and SCBA units. Based on the factors presented below, FRA is proposing to

¹⁴ Federal Railroad Administration Guidance for Developing an Atmosphere-Supplying Emergency Escape Breathing Apparatus Program (Dec. 2016). <https://railroads.dot.gov/elibrary/federal-railroad-administration-guidance-developing-atmosphere-supplying-emergency-escape>.

require an atmosphere-supplying respirator that provides adequate head and neck protection as well as giving sufficient time for its user to escape an IDLH atmosphere.¹⁵

In the 2010 NPRM, FRA noted that it was aware of three main organizations that had promulgated standards governing the use and maintenance of respirators – NIOSH, OSHA, and the ISO.¹⁶ Since issuance of the 2010 NPRM, however, FRA has become aware of a third organization, CEN, that has also developed two relevant standards.

As explained in the 2010 NPRM, NIOSH, located within the Centers for Disease Control and Prevention of the U.S. Department of Health and Human Services, worked with government and industry partners to develop certification standards for respirators. The NIOSH regulations, codified at 42 CFR part 84, establish the requirements for NIOSH-certification of respirator equipment. NIOSH has also developed information on safe levels of exposure to toxic materials and harmful physical agents and issued recommendations for respirator use.

ISO has also established standards for respirator maintenance and use. The ISO is a network of national standards institutes in 162 countries, including the United States, through the American National Standards Institute. ISO develops international standards to assist in ensuring the safe performance of a wide range of EEBA's. While ISO is not a government organization, it works to establish performance standards that have scientific and technological bases while ensuring that products, falling within its purview, are safe and reliable for consumers. The organization has promulgated ISO 23269-1:2008(E), "Ships and marine technology — Breathing apparatus for ships — Part 1: Emergency escape breathing devices (EEBD) for shipboard use, First Edition (2008-02-01)." While ISO 23269-1:2008 is directed towards EEBA's on ships and marine technology, the

¹⁵ NIOSH defines an IDLH as "an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere." See 29 CFR 1910.134(b).

¹⁶ 75 FR 61386, 61390 (Oct. 5, 2010).

standard can be reasonably transferred to the railroad environment. ISO 23269-1:2008 establishes performance specifications for EEBA's that are intended to provide air or oxygen to a user to facilitate escape from accommodation and machinery spaces, similar to a locomotive cab, with a hazardous atmosphere.¹⁷

CEN serves a similar purpose as ISO in that it develops consensus standards for European countries. In creating these standards, CEN relies on the input of technical experts, business and consumer groups, and other societal interest organizations. Additionally, there is a measure of interconnectedness between the ISO and CEN, as CEN has entered into a cooperative agreement with ISO to avoid duplicative standards. In the area of escape respirators, CEN has developed two standards that railroads could use to identify an appropriate EEBA to provide to an employee. The first standard establishes requirements for approving closed-circuit escape respirators, *see* BS EN 13794:2002 E, "Respiratory Protective Devices—Self-Contained, Closed-Circuit Breathing Apparatus for Escape—Requirements, Testing, Marking (November 2002)," while the second standard establishes requirements for approving open-circuit escape respirators, *see* BS EN 1146:2005: E, "Respiratory Protective Devices—Self-Contained, Open-Circuit Compressed Air Breathing Apparatus Incorporating a Hood for Escape—Requirements, Testing, Marking (September 2005)." While BS EN 13794:2002 and BS EN 1146:2005 are standards created for the European market, FRA finds that compliance with either standard would be adequate to establish the reliability of a device, subject to the provisions of this regulation, specifically, proposed 49 CFR 227.203, which is discussed in detail below. *See* VIII. Public Comment on the NPRM, with FRA's Response and IX. Section-by-Section Analysis.

¹⁷ However, as explained below, FRA believes that the minimum breathing capacity allowed by ISO 23269-1:2008, which is 10 minutes, is insufficient for the anticipated use in a railroad environment. As a result, the proposed rule requires a minimum breathing capacity of 15 minutes, which would be equally applicable to EEBA's certified under the requirements of NIOSH. *See* 42 CFR part 84, or ISO 23269-1:2008.

Additionally, OSHA, located within the U.S. Department of Labor, is responsible for developing and enforcing general workplace safety and health regulations related to respiratory protection. In furtherance of this responsibility, OSHA has promulgated extensive regulations governing the maintenance, care, and use of respirators of all types, including emergency escape devices. *See* 29 CFR 1910.134.

In drafting this proposed rule, FRA considered the requirements of both Federal agencies (NIOSH and OSHA) as well as the ISO and EN standards to assist in determining the possible types of EEBA's that may be used by railroad employees covered under this rule. To determine which type or types of EEBA's are appropriate, FRA has looked to the comprehensive selection process for respirators developed by NIOSH.¹⁸ For purposes of EEBA's deployed in the railroad environment, the two major NIOSH factors to consider in selecting a respirator are to determine whether the respirator is intended for: (1) use in an oxygen-deficient atmosphere (i.e., less than 19.5 percent O₂); and (2) use in, entry into, or escape from, unknown or IDLH atmospheres (e.g., an emergency situation).

FRA's investigation into the Graniteville accident found that the concentration of the toxic chlorine cloud over the accident site area was estimated to be approximately 2,000 parts per million (ppm).¹⁹ OSHA classifies chlorine as having an IDLH level of 10 ppm. FRA roughly estimated the distance between the final resting spot of the breached chlorine tank car in relation to the train crew, as well as the wind speed and size of breach, to determine that the chlorine plume reached the crew within two minutes. The coroner's report on the eight fatalities to persons who were not railroad employees in the Graniteville accident indicated that the primary cause of death was asphyxia, or lack of oxygen. The coroner listed the engineer's primary cause of death as lactic acidosis.

¹⁸ <https://www.cdc.gov/niosh/docs/2005-100/default.html>.

¹⁹ *See* R. L. Buckley, Detailed Numerical Simulation of the Graniteville Train Collision, Savannah River National Laboratory, Report WSRC-MS-2005-00635 October 2005.

Exposure to chlorine gas was attributed as the secondary cause of all deaths in the accident. Under the circumstances presented, it appears that both NIOSH selection criteria were met. There may have been an oxygen-deficient atmosphere, and there certainly was toxic-gas concentration exceeding IDLH levels.

The Graniteville accident demonstrated that railroad hazardous material incidents (meaning collisions, derailments, or other train accidents) involving the catastrophic loss of certain PIH materials have the potential to release IDLH concentrations and/or displace oxygen very quickly without the crew's knowledge. In such circumstances, the crew may need to respond to an incident by donning their EEBA's even before assessing the damage caused by an accident. Considering the variables associated with the transportation of hazardous materials via rail and the potential hazards that exist, FRA is, based on the NIOSH selection criteria, proposing to require that railroads provide an escape-type respirator to covered employees.

The single function of escape-type EEBA's is to allow sufficient time for an individual working in a normally safe environment to escape from suddenly occurring respiratory hazards. Given this function, the selection of the device does not rely on assigned protection factors designated by OSHA.²⁰ Instead, these escape-type respirators are selected based on a consideration of the time needed to escape in the event of IDLH or oxygen-deficient conditions.

Pursuant to statutory requirements, and as proposed in the 2010 NPRM, this SNPRM would require providing a device with head and neck coverage. Escape-type SCBA devices are commonly used with full-face pieces or hoods. Such devices are usually rated from 3- to 60-minute units depending on the supply of air. The following

²⁰ "Assigned protection factor" means the level of safety that a respirator or a class of respirators is expected to provide to employees. Assigned protection factors were developed by OSHA to designate to employers the proper type of device that is required in selecting a respirator. According to OSHA, assigned protection factors are not applicable to respirators used solely for escape.

two types of atmosphere-supplying SCBA would satisfy the protection requirements of this proposed regulation:

- Open-Circuit SCBA. These are typically classified as positive pressure, open-circuit systems whereby the user receives (inhales) clean air with 21 percent O₂ from a compressed air cylinder worn with a harness on the back. The user's exhaled breath contains significant amounts (15 percent) of unused oxygen that is vented to atmosphere. Because much of the user's exhaled breath vents to atmosphere, the size of open-circuit systems is larger than closed-circuit systems. Open-circuit SCBA systems may employ full face masks or hoods and typically require an airtight seal against the head, face, or aural/nasal area.
- Rebreathers. These can be positive-pressure or negative-pressure systems. Classified as closed-circuit O₂ systems, rebreathers perform as their name implies. The user rebreathes his or her breath. A chemical scrubber removes the CO₂ from the user's breath and makes up metabolized O₂ from a small bottle of compressed 100-percent O₂. Because the user is rebreathing his or her exhaled air containing 15 percent oxygen, a rebreather is four times more efficient than an open-circuit system. As a result, such systems are capable of either lasting much longer than open-circuit systems (if size were comparable) or providing the same breathing duration as an open-circuit system but in a smaller package. Rebreathers may be employed with full-face masks or hoods. Negative pressure rebreathers do not require a tight seal.

First responders (such as firefighters) commonly use open-circuit positive pressure SCBA systems for entering the scene of an emergency event. However, such devices may not be best situated to the railroad environment. In addition to being heavy and cumbersome from incorporating a large, compressed air cylinder mounted to a harness, they also commonly incorporate use of a full-face piece. Depending on the program developed by each railroad, the incorporation of a full-face piece may be a

logistically and economically difficult undertaking. To be effective, a full-face piece requires an airtight seal around the user's face, which means that each user must be personally fitted for the device. It also means the user must be cleanly shaven or otherwise free of excessive facial hair. The enforcement of such a requirement would be difficult at best.

FRA believes that hoods provide a useful alternative to full-face masks while protecting the face and neck. Hoods are universal fitting devices and can be used with open and closed-circuit SCBAs. Because they are universal fitting, hoods do not require personally fitting the user, and hoods operate efficiently regardless of most eyewear, facial features, or hair. Significantly, hoods also allow the wearer to communicate while using the SCBA.

Experience has shown that a plume of hazardous material can travel quickly. As a result, it is vitally important that the train crew has adequate breathing time available to allow each member to move a significant distance from the site while protected from the ambient atmosphere. Because such incidents will often result from a collision, as was the case in Macdona and Graniteville, consideration should be given to those situations where additional time may be used to assist or extricate fellow crewmembers that may be hurt or trapped. For example, if it takes 10 minutes to assist a fellow crewmember and each is wearing a 15-minute open-circuit respirator, each crewmember is left with five minutes to escape from any plume that may be present. Moreover, often individuals will have a tendency to over-breathe in stressful situations, which will shorten the breathing time available in a respirator. In selecting an EEBA with sufficient breathing time, each railroad should take into consideration these factors and others that contribute to the "Murphy's Law" effects of accidents such as an incident occurring at night or in tight terrain. As a result, FRA is proposing to require that EEBA's being provided to covered employees have a 15-minute minimum breathing capacity. Further, FRA encourages

railroads to consider EEBA's with a longer breathing capacity, to provide an extra margin for escape under stressful circumstances.

V. Provision of EEBA's to Covered Employees

In proposing this regulation, FRA has decided not to propose a specific method by which railroads must provide EEBA's to covered employees. *See* discussion of covered employees at IX. Section-by-Section Analysis of §§ 227.201 and 227.211, below. FRA recognizes that there are differing methods for effectively distributing suitable EEBA's among a railroad's covered employees, its locomotive fleet, or both. Each of these options has advantages and disadvantages. Given these factors, FRA believes that the proposed regulation most efficiently serves the RSIA mandate by allowing each railroad to choose the method of distribution that works for it as long as: (1) covered employees are provided with a suitable device while they are in the locomotive cab of a freight train transporting a PIH material; and (2) transportation of a covered hazardous material is not unduly delayed, thereby posing additional risk, particularly where the covered train (or a locomotive intended to be used to haul a covered train) is interchanged from one railroad to another. *See* VII. Information and Recommendations Provided by the Railroad Industry and Railroad Labor Organizations after the Study, for relevant remarks. In the following paragraphs, FRA discusses the potential costs and benefits of five options available to railroads for providing EEBA's to covered employees.

Under this proposed rule, EEBA's may be treated as part of an employee's permanently issued items, similar to eye protection, radios, and lanterns. This method of distribution would allow railroads to permanently issue an EEBA to each potentially covered employee (e.g., for a freight railroad that regularly hauls one or more PIH materials, possibly all of its train employees). The device would be in the user's control at all times, and each individual would be responsible for having the device in his or her possession. The carrier would still be responsible for ensuring the state of the equipment

through an inspection program; however, the company would be relieved of most of the responsibilities for EEBA management. Theoretically, this option would tend to result in better cared for equipment and lower replacement costs. Moreover, personal assignment allows for customization of the EEBA. However, permanently issuing EEBA to employees results in substantial costs. Over a 10-year period, total costs would be approximately \$90.8 million. Other negative aspects of treating EEBA as a permanently issued item include difficulty in monitoring the condition of the EEBA and ensuring that the EEBA is with the user at all times that it is required to be available. Additionally, permanently issuing the EEBA would add to an already lengthy list of items expected to be carried by train employees.

Alternatively, EEBA's may also be permanently assigned to an individual as a dedicated personal item that would be issued at the start of each shift and recovered at the end of each shift as part of the clock-in/clock-out process. This method allows for customization and allows the EEBA to be with the user at all times the user is on duty, while supporting centralized inspection and maintenance. However, the railroad may experience greater costs due to the increased size of its EEBA inventory since all train employees that have the potential to work in the locomotive cab of a freight train transporting a PIH material would require stocked EEBA's. This alternative may also create difficulties in the provision of EEBA's if the train employees who must have access to the EEBA's have more than one on-duty location.

A third option is to treat EEBA's as "pool" items. The EEBA's would not be assigned to a specific individual. They would be issued at the start of each shift and recovered at the end of each shift as part of the clock-in/clock-out process. This option supports centralized inspection and maintenance while minimizing number of EEBA's required, which could reduce costs substantially. FRA estimates that trains transporting PIH materials amount to approximately 0.2 percent of all train traffic, as cars carrying

PIH materials are concentrated in relatively few trains. If railroads chose this option, they could stock enough EEBA's to cover 10 percent of the entire locomotive fleet for approximately \$33.5 million over a 10-year period. Equipping enough EEBA's to cover 10 percent of the entire locomotive fleet should allow for every locomotive that will be part of train transporting a PIH material to be equipped with the necessary devices for each covered employee provided that the railroads exercise adequate resource management with respect to EEBA's. This would ensure that the EEBA would be with the user throughout his or her entire shift. However, railroads likely would have to allocate or build space at one or more locations (depending on the size of the railroad) to warehouse EEBA's that are not being used by covered employees. Moreover, an employee must be assigned to monitor the handing out and returning of devices, and the fewer the devices, the tighter the management will have to be. These factors increase the management burden for tracking and recovery of EEBA's. Additionally, this system also may have hidden costs, such as losing the benefits of "ownership" if EEBA's are treated as common property.

A fourth option is to have EEBA's permanently mounted in each locomotive cab in the railroad's fleet. This method would ensure that trains transported by the railroad that include a PIH material are always adequately equipped, while supporting centralized inspection and maintenance. The negative aspects of permanently mounting the EEBA selected by the railroad in the cabs of the railroad's locomotive fleet include the increased size of the railroad's EEBA inventory if non-covered consists would transport the EEBA's and if EEBA's must be provided for worst-case crewing (including possible supernumerary personnel such as deadheading employees), increased management burden for tracking/recovery, increased management burden for item inspection and maintenance, and unavailability of customized EEBA's. Additionally, FRA has estimated that the total 10-year cost of outfitting all locomotives to be approximately \$105.3

million. These estimates could be reduced if railroads opted to dedicate a portion of their locomotive fleet to service for trains transporting PIH materials, but dedicating locomotives in this manner would likely result in decreased economic efficiency.

As discussed in VII. Information and Recommendations Provided by the Railroad Industry and Railroad Labor Organizations after the Study, AAR has proposed that Class I railroads interchanging locomotives with each other will provide the same type of EEBA while also using the same method of equipping the locomotive, which would expedite interchange between two Class I railroads. However, the option of permanently mounting a specific type of EEBA within each locomotive owned by a Class I railroad could create delays at interchange if the locomotives from nonparticipating railroads also are offered in interchange to Class I railroads to haul covered trains. The delay could occur if the nonparticipating railroad delivers a locomotive in interchange that either lacks an EEBA of any kind or that has an EEBA that does not conform to the type specified under the Class I railroad's general EEBA program under proposed § 227.211.

EEBAs also may be temporarily mounted in the locomotive cab as the train containing a shipment of PIH material is made up. Using this option would help to minimize the number of EEBAs required, while ensuring that each consist containing a PIH material is appropriately equipped. It would also allow the railroad to cater efficiently to differing crew sizes. Drawbacks with this method include increased management burden for the initial issue of EEBAs to the consist, increased management burden for tracking/recovery, increased management burden for item inspection and maintenance, and unavailability of customized EEBAs.

FRA recognizes that these are but a few of the numerous options for the provision of EEBAs, each having its own costs and benefits. Any of these options (or combination of these options), including options that have not been discussed above, is acceptable under this proposed rule, as long as a suitable EEBA is provided by the railroad to each

covered employee while they are in a locomotive cab of a covered train and the transportation of covered hazardous materials via rail is not unduly delayed.

VI. Information and Recommendations Provided by the Railroad Industry and Railroad Labor Organizations after the Study

As previously mentioned, representatives of both the railroad industry and railroad labor cooperated with the FRA-sponsored study on the feasibility of providing EEBA's to train crews, the report of which was published in May 2009. AAR, UTU²¹, and BLET also exchanged information and ideas with FRA on issues related to this rulemaking.

In July 2009, prior to the publication of the NPRM, representatives of AAR briefed FRA with information on AAR's exploration of alternative ways by which the rulemaking mandate under section 413 of the RSIA might be carried out. AAR has also offered recommendations to FRA on issues related to this rulemaking, including the type of EEBA and the mode of providing it that AAR thought would satisfy the statutory mandate. Subsequently, in a letter to FRA dated January 13, 2010, AAR encouraged FRA to incorporate by reference a draft specification establishing guidelines for: (1) vendors of EEBA's that would be used by Class I railroads; (2) mounting EEBA's on locomotives; and (3) requiring training support.

FRA considered incorporating by reference a finalized version of AAR's specification; however, FRA has ultimately decided not to do so. Many comments raised questions about the details of the specification, and FRA believes this proposed rule provides a better standard for efficiently complying with the RSIA mandate. Of course, AAR is free to rely on a final specification to normalize EEBA's among Class I railroads, as long as the specification complies with the requirements in subpart C.

²¹ UTU is now part of the International Association of Sheet Metal, Air, Rail and Transportation Workers (SMART).

Additionally, in the course of drafting the NPRM, FRA representatives met with UTU and BLET representatives on March 31, 2010, who briefed FRA on issues related to the provision of EEBA's. AAR was also in attendance at this meeting. UTU felt that EEBA's should be "placed on all occupied locomotives which operate over a corridor where freight trains carry hazardous materials that pose an inhalation hazard in the event of a release." Under UTU's recommendation, each occupied locomotive would be required to have working EEBA's—even if the occupied locomotive is not part of a train carrying asphyxiants or PIH materials—as long the locomotive is operating over a rail line that carries such materials.

During the March 31, 2010, meeting, UTU indicated that it opposed issuing EEBA's as personal items. UTU felt that adding an additional item to each train employee's required personal equipment would unnecessarily burden crewmembers. UTU was concerned with not only the added weight, but also the extra responsibility for care and maintenance that would fall to train employees in the event that EEBA's are provided as personal equipment. It contended that railroads are in a better position than the employees to maintain the devices and stated that treating EEBA's as personal equipment would not satisfy the intent of Congress in passing the legislation.

Finally, UTU stressed that there must be sufficient training of train employees in the use of EEBA's. Such training would ensure that train employees would know how to use EEBA's if presented with a situation in the field where their use was required. UTU expressed a strong desire for regular, hands-on training with devices selected by the railroads to achieve these ends.

VII. Public Comment on the NPRM, with FRA's Response

A. Introduction

FRA received 11 sets of comments on the 2010 NPRM from 12 different entities (BLET and UTU jointly submitted comments), covering a broad spectrum of interests

which resulted in a number of revisions to this proposed rule. These commenters included the railroad industry, labor organizations, professional associations, respirator manufacturers, Federal agencies, and concerned individuals. In updating the proposed rule, FRA has considered each issue raised by the commenters, and it addresses those issues in this section.

B. Comments on the Preamble, with FRA's Response

NIOSH comments regarding footnote 4 in the preamble to the NPRM, which states that “[t]he proposed NIOSH regulations would be applicable to mine workers, but NIOSH provides that once the final rule is published it would be used to certify respirators in other work environments where escape respirators are supplied.” NIOSH suggests that the above-noted wording implies that the existing regulations only apply to certification of escape respirators for the mining work environment. However, the respirators certified for use under the existing regulations have been and continue to be used to certify respirators for use in other work environments where escape respirators are supplied. As the NIOSH rulemaking in question has been finalized, FRA has removed the footnote to avoid confusion.

Additionally, NIOSH recommends clarifying the preamble discussion on the type and performance level of protection to be provided by the required head and neck coverage (e.g., impact or penetration resistance, lens abrasion resistance, eye irritation). In the NPRM, there are several places where these issues were addressed. *See* 76 FR 61392, 61395, and 61403 (Oct. 5, 2010). FRA understands Congress’s primary intent in requiring protection of the head and neck of covered employees is to ensure that the eyes, noses, and throats of the employees are protected from exposure to the irritant properties of any contaminants. Because the EEBA standard is, to the degree possible, a performance standard that sets the performance criteria for EEBA’s for use in emergency escape situations, FRA does not seek to prescribe specific respirator performance

measures—with the exception of breathing capacity—and/or specific respirator type. FRA has therefore modified its discussion in the Section-by-Section Analysis to state clearly FRA’s intent of providing performance criteria that must be met by the head and neck protection language—the prevention of eye, nose, and throat irritation—when considering a specific type of respirator.

NIOSH also recommends that the NIOSH-certified closed-circuit escape respirators, which use a chemical source for oxygen (e.g., Draeger OXY K plus S and CSE SR-100 units), be mentioned in the preamble to the final rule as an atmosphere-supplying SCBA that satisfies the protection requirements of the regulation. FRA takes the position that any respirator that meets the criteria established under proposed § 227.203 would be acceptable. The descriptions in the preamble were not intended to be an exhaustive explanation of the types of respirator technology available, only to describe some of them for illustrative purposes.

An individual commenter states that FRA’s own data suggest the rule appears to be unnecessary, costly, and likely inimical to the safety of train crews. He contends that, considering the low fatality rate documented for hazardous material releases, FRA should put its resources in continuing to minimize the number and consequence of rail accidents involving hazardous materials. In response to this comment, FRA notes that the RSIA mandates that the Secretary adopt regulations requiring railroads to provide EEBA’s for train crews in occupying locomotive cabs of any freight train transporting a hazardous material in commerce that would present an inhalation hazard in the event of a release. Given this statutory mandate, FRA is proposing a rule that not only considers the costs, but also provides a mechanism to enhance safety for railroad employees transporting hazardous materials presenting an inhalation hazard if a release occurs. Moreover, it is important to recognize that FRA has recently undertaken a number of rulemaking initiatives in a variety of disciplines, including re-engineering of tank cars (in cooperation

with PHMSA), PTC, and amendments to operating rules, all designed to improve the safety of railroad operations, and thus reduce the rate of incidents, including those involving hazardous materials. As with all complex systems, however, there are occasions when failures do occur. This proposed rule would provide an additional element of protection for covered employees should an accident with a PIH release occur in the future.

The individual commenter also states that, in his experience with protective breathing gear, it is a liability unless employees are highly trained in using the devices. The commenter raises the concern that crews may waste precious time in donning EEBA's when the best course of action is to exit the predicament. Additionally, the commenter is concerned that such gear may result in increased panic by reducing situational awareness when presented with the stress of an accident. FRA has considered these issues while drafting this proposed regulation and expects that the time taken to don this gear will be minimal. In FRA's view, the use of an EEBA can enhance a covered employee's opportunity to escape a potentially toxic environment that, absent these devices, they would be unable to do without an adverse outcome. The Macdona chlorine release reveals that the conductor, who died, had initially escaped the locomotive cab, but while trying to walk away from the accident scene, was exposed to chlorine to the degree that it overcame him. In that case, had an EEBA been present and used by the conductor, he may have had sufficient time and breathable air to get far enough away from the chlorine release to survive.

BLET and UTU (jointly referred to as Labor) comment that FRA's NPRM understates the benefits of the proposed regulation. Labor contends that the value of preventing injuries necessarily requires a subjective assignment of casualties to several categories of an "Abbreviated Injury Scale," the most severe of which is a critical injury. A critical injury is valued at 76.25 percent of the cost of a statistical human life. Labor

then posits that if only 2 percent (14) of the 660 predictable inhalation casualties identified by FRA are deemed critical, then the benefit of the proposed rule would roughly equal the \$73,900,000 cost that FRA associated with the 2010 NPRM if railroads permanently equip locomotives with open-circuit type EEBA's.

While Labor's comment correctly asserts that there were 660 inhalation casualties over the 10-year period presented in the 2010 NPRM, FRA reanalyzed that data to determine the relevance of these casualties to the issue of transporting hazardous materials that would pose an inhalation hazard in the event of a catastrophic release. FRA's analysis matched HMIS²² incident data, maintained by PHMSA, with FRA's part 225 injury and illness records over the 2010 NPRM's 10-year period. The data were further filtered by removing RCOs and actions where the employee was walking, adjusting things, throwing switches, coupling air hoses, etc.—i.e., not in the cab. FRA then removed events that were not related to the inhalation of a chemical (e.g., burned, chair/seat, assaulted by another, splashed, or dripped). Of the remaining incidents, only five casualties occurred on a mainline track or a siding that would have fallen within the category of events that this proposed rule seeks to protect against. Of those incidents, two casualties arose out the Macdona collision, and two casualties arose out of the Graniteville collision, both of which are discussed in the preamble.

Additionally, Labor takes issue with the cost-benefit discussion in the 2010 NPRM preamble because it contends that FRA implies it was pushed into implementing this rule by a Congressional mandate and "appears to be apologizing for implementing this rule because it might, in their analysis, cost the railroads money." As a result, Labor asks that the preamble be edited to remove the following text "[a]lthough the costs

²² PHMSA, the Federal agency within DOT charged with the safe and secure movement of almost 1 million daily shipments of hazardous materials by all modes of transportation, developed the HMIS. The system maintains and provides access to comprehensive information on hazardous materials incidents, exemptions and approvals, enforcement actions, and other elements that support the regulatory program.

associated with implementation of the proposed rule would likely exceed the benefits, FRA is constrained by the requirements of RSIA.” *See* 75 FR 61398. FRA is leaving the statement in this proposed rule as it appears in the 2010 NPRM. The analysis that FRA undertook was not intended to diminish the real and significant tragedies that occurred. FRA must ensure that the economic analysis is done in as objective a manner as possible, and it has a duty to inform the public when a rule has a negative cost-benefit ratio.

C. Comments Recommending Additional Provisions, with FRA’s Responses

Draeger Safety (Draeger) comments that the closed-circuit SCSR is the appropriate respirator that should be used for railroads. Draeger notes that SCSRs have been used extensively in the United States and internationally by the mining industry and on oil drilling platforms. Additionally, Draeger states that SCSRs are used by the U.S. Navy and by railway operations in Switzerland and Austria. SCSRs are currently approved by NIOSH under 42 CFR part 84. While the device mentioned in Draeger’s comments may be the one selected by a railroad it is not the only type that will meet the requirements in the RSIA mandate or in the criteria laid out by FRA.

Chemical Facility Security News suggests that FRA should include a requirement to place chemical detectors and alarms on all asphyxiant gas and PIH railcars that would notify train crews when there is a leak that might require them to don their EEBA. The commenter asserts that such detectors or alarms also would benefit those first responders at the scene. Additionally, Chemical Facility Security News argues that any usage requirements for EEBA should also require a personal detector for the chemicals involved. Chemical Facility Security News states that this is the only way that train crewmembers will know if they have moved to a safe location that is suitable for removing an EEBA.

Under this proposed rule, railroads would be required to provide instruction for covered employees on the proper evacuation procedures and use of the EEBA.

Employees must also be instructed to evacuate the locomotive cab immediately during a release of a hazardous material that would present an inhalation hazard.

FRA has not included a provision in this proposed rule mandating that railroads provide chemical detectors or alarms for several reasons. First, as more than 20 listed PIH chemicals are transported by rail, it would not be possible to provide a single chemical detection device that would have the capability of detecting the full range of PIH materials (or asphyxiants) that may be encountered. According to the Chemical Facility Security News blog, “many of the covered chemicals cannot be detected by the human senses.” In fact, even the most innovative chemical detection devices are limited to the detection of only a handful of toxic industrial chemicals. In addition, chemical detection devices would only be reliable when the wearer is positioned downwind of the toxic vapor cloud and external to the locomotive cab. Also, it should be noted that if the concentration of the PIH material is high enough to create an IDLH environment, then the detection device may not provide sufficient time to take protective measures.

The acquisition and use of the devices would also be very expensive, especially considering the purchasing, maintenance (including factory maintenance and calibration), and training costs, and FRA does not believe it would provide additional protection for locomotive cab employees. FRA believes that in an emergency situation, such as an accidental release, covered employees should be focused on donning the EEBA and safely evacuating the locomotive instead of looking for a detection device to decide whether donning the EEBA and evacuating the locomotive is necessary.

Chemical Facility Security News also comments that there should be a serious look into whether a similar requirement should be provided for other transportation workers because trucks may haul similar chemicals and are involved in more accidents per mile than their railroad counterparts. FRA’s regulatory authority is limited to

establishing safety regulations for the railroad industry and, thus, this comment is beyond FRA's regulatory authority to implement.

ASLRRA comments address concerns about the financial impact of the RSIA mandate on the small railroad industry, which it contends is already stressed by the cumulative effect of other regulations and a lack of pricing power. ASLRRA states that this proposed regulation will not enhance safety for small railroads, since there have not been any fatalities, to its knowledge, arising out of the shipment of PIH materials by Class III railroads. Indeed, ASLRRA is concerned that the new requirements will reduce safety by forcing small railroads to take money from their capital budgets that would have been used for track maintenance and other infrastructure improvements. Separately, it notes that the effect of the proposed rule could be to shift transportation of PIH materials from rail lines to the nation's roads and highways, where the potential for catastrophic interaction with the broader public is much greater. As a result, ALSRRA requests that FRA seek an exemption from Congress for Class III railroads that handle PIH traffic on their own lines where train speeds do not exceed 30 miles per hour.

FRA understands ALSRRA's concerns, but the agency is constrained by section 413 of the RSIA. Unlike with PTC, Congress did not carve out an exemption for Class II and Class III railroads from the statutory requirement. *See* section 104 of the RSIA. Instead, Congress used broad language that covers any railroad carrier transporting hazardous materials that would pose an inhalation hazard in the event of release. In light of this language, FRA is constrained from instituting an exception for Class III railroads without Congressional action. Notwithstanding these constraints, FRA has proposed measures to limit the costs for railroads. In particular, FRA has proposed allowing railroads to pursue the most cost-effective way to provide EEBA in accordance with the statutory and regulatory requirements. Additionally, small railroads could consider pooling resources wherever possible for requirements such as periodic training.

Moreover, Class III railroads will have a full 18 months from the effective date of the rule before they will be expected to be in compliance, which allows for the “start-up” costs related to compliance (e.g., acquiring respirators and establishing training programs) to be spread out over a period of time.

Labor raises concerns about placards and manifest accuracy. Labor contends that it would defeat Congressional intent in requiring the provision of the EEBA's if train crews are not aware that the freight train on which they are working is transporting or will encounter trains that are transporting materials that could pose an inhalation hazard if released. It asserts that train manifests must be 100-percent accurate to ensure that the train crew understands the need to have EEBA's on the train. As a result, Labor argues that the absence of clerical employees to verify the accuracy of train manifests could endanger the safety of operating employees as well as surrounding communities where PIH materials are transported. Further, Labor suggests that operating crews and shop employees who prepare locomotive consists for service should receive regular job briefings on the requirements for EEBA's in locomotive cabs.

With respect to Labor's concerns, FRA notes that, while placard and manifest accuracy are not included in the RSIA mandate, PHMSA already has regulations governing the accuracy of shipping papers, including manifests, markings, labels, and placards, *see* 49 CFR part 172, subparts C, D, E, and F, and the accuracy of train consists, *see* 49 CFR 174.26. On the issue of required job safety briefings, FRA has proposed training standards in § 227.209, Railroad's program of instruction on EEBA's, which contains requirements for teaching the safe provision and use of EEBA's. Proposed § 227.209 requires that covered employees be instructed on the types of products that are PIH materials. This instruction would be in addition to the initial and recurrent hazardous materials training required of railroad crewmembers and other hazardous materials employees in 49 CFR part 172 subpart H. Given these training requirements

along with other regulations that could cover the risk associated with the transportation of PIH material such as railroad safety risk reduction programs in 49 CFR parts 270 and 271, this proposed rule does not require regular safety briefings.

*D. Section-Specific **Public** Comments, with FRA's Response*

FRA did not receive any comments on the proposed changes to the sections in part 227, subparts A and B; did not receive comments on proposed §§ 227.213 and 227.215 in subpart C; and did not receive any comments regarding the amendment to part 227, appendix G.

1. Comments on Proposed § 227.201(a)(1), with FRA's Response

FRA received a number of comments on proposed § 227.201(a)(1). While FRA continues to propose most of this provision without change, as discussed in detail below, FRA has modified the paragraph in this SNPRM by removing simple “asphyxiants” from the text of the regulation that identifies the items being transported that would trigger the requirement for providing EEBA's to covered employees. As modified, § 227.201(a)(1) would require the provision of EEBA's to each train employee, direct supervisor of a train employee, deadheading employee, and any other employee designated by the railroad when any of the employees is required to work in or occupy the locomotive cab of a covered train that is transporting a PIH material, which would include PIH material asphyxiants.

NIOSH suggests that FRA could require railroads to place EEBA's strategically at various locations in rail yards (e.g., maintenance shop, office, staging areas). This would expand protection to employees who are conducting local area/yard work with trains carrying hazardous materials. NIOSH states that placing EEBA's in the rail yard would allow workers to avoid approaching a locomotive that may be involved in an incident to obtain an EEBA.

The RSIA established a limited statutory mandate to promulgate regulations that require railroads to provide EEBA's "for all crewmembers in locomotive cabs on freight trains carrying hazardous materials that would pose an inhalation hazard in the event of release." If Congress had wanted the Secretary to promulgate expansive regulations covering areas outside the locomotive cab, then it would have chosen different language that could be read to cover areas other than locomotive cabs, including rail yards. Since Congress did not do so, FRA does not propose to include requiring the provision of EEBA's at strategically placed locations in rail yards. However, the rule in no way prohibits railroads from voluntarily locating EEBA's in the rail yards to allow employees to protect themselves in the event of a release within a rail yard.

Draeger suggests that §§ 227.1 and 227.201(a)(1) should be changed to cover any employee located in an occupied space of an in-service freight train. Draeger also raises the alternative of requiring that covered employees be provided with belts with EEBA's attached to them so that an EEBA will be available at all times. As noted in the preceding paragraph regarding NIOSH's suggestion of placing EEBA's strategically throughout rail yards, FRA believes the current proposed language in this section appropriately complies with the mandate established by the RSIA. Additionally, given that locomotive cabs are the only "occupied space(s)" on freight trains, FRA views this suggested change as redundant.

Labor suggests amending proposed § 227.201(a)(1) to require every train employee who is required to operate a freight train, including local freight and transfer service, that may pass, follow, or operate on tracks adjacent to other trains that are carrying hazardous materials or residue in their manifest, must be provided with quick access to an emergency escape breathing apparatus. FRA declines to adopt this proposal for two reasons. First, as noted above, the RSIA is clear where EEBA's are required (i.e., "in locomotive cabs on freight trains carrying hazardous materials that would pose an

inhalation hazard in the event of release.”). The RSIA does not establish a broad mandate for the provision of EEBA’s to every train employee who is required to operate a freight train that may pass, follow, or operate on tracks adjacent to other trains that are carrying hazardous materials or residue in their manifest. Second, the language proposed by Labor could be read in a manner that would actually reduce the protection afforded to other employees who also may be present in the locomotive cab during an emergency situation. Under Labor’s proposal, only employees who are “operating” the train would be covered instead of all occupants of the cab. This proposal appears to exclude certain railroad employees located in the locomotive cab as well as employees deadheading in a following unit since neither would be “operating” the train.

Labor also recommends amending proposed § 227.201(a)(1) to make clear that an RCO crewmember, who is riding in the locomotive cab of a freight train moving asphyxiants (presumably, this comment would apply to PIH materials as well), must be provided an EEBA. FRA addressed this issue in the preamble to the 2010 NPRM and does not see a need to amend the proposal in this SNPRM. FRA considered exempting RCOs who are not in the cab of a locomotive during the movement of an in-service freight train transporting a PIH material. FRA ultimately decided that a separate exclusion was unnecessary for RCOs conducting movements from the ground because an RCO is primarily on the ground when performing switching operations, which are not considered freight train movements under this part. As a result, railroads would not be required to provide EEBA’s in the locomotive cab in such a circumstance. However, at the point that switching operations have ceased, and the crew is ready to leave the yard with an in-service freight train that is transporting a PIH material, FRA would expect the RCO to occupy the cab and ride in the locomotive from point A to point B. In the event that the RCO enters the locomotive cab for this type of movement, the rationale for excluding RCOs no longer exists, and the railroad must provide the RCO with an

EEBA.

AAR asserts in its comments that the proposed regulations requiring the provision of EEBA in locomotive cabs should not apply to those asphyxiants that are not PIH materials. According to AAR, FRA's 2010 NPRM interpreted the RSIA in an overly broad manner when it proposed to apply the EEBA requirement to asphyxiants, rather than just PIH materials. AAR notes that there are a number of substances that would cause asphyxiation if a person were inhaling that substance and no oxygen, but Congress did not indicate its intent to require EEBA for all such substances. AAR argues that FRA must consider this regulation in light of the Macdona and Graniteville accidents, which spurred Congressional action. Macdona and Graniteville both involved chlorine, a PIH material. Moreover, AAR notes that "there is no record of any rail-related fatality attributable to the inhalation of non-PIH substances." Given these factors, AAR asserts that Congress did not intend to cover asphyxiants.

Additionally, relying on FRA's finding that the costs of the rulemaking exceed the benefits, AAR argues that FRA unjustifiably increases the burden imposed on industry by including asphyxiants in the proposed regulation that are not classified as PIH materials. AAR asserts that there are approximately 100,000 shipments of PIH materials per year, while there are approximately 200,000 shipments of asphyxiants that are not classified as PIH materials. Thus, according to AAR non-PIH material asphyxiants should be excluded from the regulation because they substantially add to the costs of this regulation without providing a benefit that exceeds such costs. As a result, AAR contends that FRA does not have an economic justification for exercising its discretion in manner that would include asphyxiants in the regulation.

Congress, in establishing the regulatory mandate in the RSIA, stated that EEBA must be provided "for all crewmembers in locomotive cabs on freight trains carrying *hazardous materials that would pose an inhalation hazard* in the event of release."

(Emphasis added). However, Congress did not define the term “hazardous materials that would pose an inhalation hazard” or provide examples that would elucidate its intended meaning. Accordingly, FRA must define the meaning of that term based on FRA’s experience in regulating hazardous materials transported by rail and any other relevant information available to the agency.

There is no dispute that “hazardous materials that would pose an inhalation hazard” includes those products that fit within the PHMSA’s definition of “materials poisonous by inhalation,” otherwise known as PIH materials. AAR appears to recognize that such materials were intended to be covered when Congress passed the RSIA. There has been substantial discussion about whether the term used by Congress includes simple asphyxiants. Because Congress did not use a commonly used and easily understood term with a specific definition, such as PIH materials, there seemed to be support for including asphyxiants as a category of products for which an EEBA must be provided to a crewmember occupying a locomotive on an in-service freight train. Thus, in the 2010 NPRM, FRA included asphyxiants as a category of products encapsulated within the term “hazardous materials that would pose an inhalation hazard.” The inclusion of asphyxiants was based on the concern that simple asphyxiants, such as CO₂ and LPG, could displace oxygen in a manner that would result in IDLH environments.

After reviewing this issue again and analyzing the comments received, however, FRA finds that the term “hazardous materials that would pose an inhalation hazard” is best understood as not including simple asphyxiants and has removed the term “asphyxiants” from the requirements of this proposed rule.

As noted by AAR, neither the Graniteville nor Macdona accidents, which appeared to spur Congress to action, involved a simple asphyxiant. Further, while there are some simple asphyxiants, such as LPG and CO₂, that are shipped in significant quantities, FRA finds that simple asphyxiants do not pose a substantial risk requiring the

provision of an EEBA for a covered employee occupying the locomotive cab to escape. A review of LPG releases shows that asphyxiation has not been a substantial risk. Moreover, in the known cases of derailments involving LPG, the resultant fire generally consumes the gas thus minimizing the risk of asphyxiation from the gas itself. Therefore, while there have been railroad employee fatalities associated with catastrophic LPG releases, those fatalities resulted from the LPG igniting rather than causing asphyxiation. FRA is unaware of any fatalities of railroad employees caused by asphyxiation in the event of an LPG release. CO₂ similarly presents limited risk related to asphyxiation in the context of a rail accident. As with LPG releases, FRA is not aware of a single asphyxiation-related railroad employee fatality that was caused by a catastrophic release of CO₂.

Additionally, FRA is mindful of the potential added costs that may fall to railroads that transport asphyxiants. Including asphyxiants within the requirements of this regulation would approximately triple the number of shipments where crewmembers must be provided with EEBA's without a resulting safety benefit. Regardless of how railroads intend to comply with the regulation's requirements, the inclusion of asphyxiants would require railroads to manage EEBA's on over triple the number of shipments when compared to requiring the provision of EEBA's for shipments of PIH materials alone.

Given all of these factors, FRA concluded it was unlikely that Congress intended "hazardous materials that would pose an inhalation hazard" to include non-PIH material asphyxiants, as such asphyxiants have not been shown to present sufficient risk of inhalation injuries or death to require the provision of EEBA's in the railroad environment. Accordingly, this proposed rule has been modified to reflect this determination; however, FRA is seeking additional comments on whether, and for what reasons, asphyxiants should be included. FRA will review any comments, will continue

to monitor incidents involving these materials, and reserves the right to revisit this decision and to include them in a final rule.

2. Comments on Proposed § 227.201(a)(2), with FRA's Response

Based on comments from Labor on proposed § 227.201(a)(2), FRA has slightly modified this proposed provision to clarify that any employee covered by the proposed rule must be provided an EEBA in the locomotive cab that they are occupying.

Additionally, as discussed above, FRA has removed any reference to asphyxiants.

Further, the provision, as modified in this proposed rule, prohibits railroads from using locomotives in freight trains transporting a PIH material unless all the train employees, supervisors of train employees in the locomotive cab, deadheading employees, and any other employees, identified by the railroad in writing, have access to EEBAs.

While Labor agrees with FRA's decision to include deadheading employees in this provision, they note that deadheading employees are likely to be riding in the trailing units of a train's consist in order to minimize the risk that their presence will be a distraction to the operating crew. As a result, Labor urges FRA to amend proposed § 227.201(a)(2) to clarify that an employee in "any" locomotive cab of the train must have access to an EEBA. Additionally, Labor suggests deleting "in an in-service freight train" from § 227.201(a)(2) and replacing it with "on a freight train."

In response to this comment, FRA has modified proposed § 227.201(a)(2) to remove "while in the cab of the locomotive of the train" and replace it with, "while occupying a locomotive cab of the train." FRA finds that this language better reflects FRA's intent, i.e., that each train employee, supervisor of a train employee, deadheading employee, and any other persons designated by the railroad, on an in-service freight train transporting a PIH material must be provided an EEBA in the locomotive cab that they are occupying. FRA is not, however, amending proposed § 227.201(a)(2) to remove "in an in-service freight train." While Labor does not explain the rationale for this suggested

change, FRA believes that such a change could potentially be interpreted to require EEBA's on freight trains at all times, even if not in service. This would expand the regulation beyond the statutory mandate, which only requires EEBA's be provided when a freight train is transporting a hazardous material that would pose an inhalation hazard in the event of a release, without significantly adding to safety.

3. *Comments on Proposed § 227.201(b), with FRA's Response*

FRA received comments on proposed § 227.201(b) from Labor and AAR. As discussed above, FRA has removed any reference to asphyxiants.

Labor contends that there is no reasonable basis for the exception. In its view, section 413 of the RSIA indicates that Congress did not intend for such an exception. It argues that the law requires the Secretary to establish regulations requiring railroads to provide EEBA's to train crewmembers in the locomotive whenever sufficient quantities of the hazardous materials are being transported, and states that "regardless of what type of rail car is being used, if a release poses an inhalation hazard, then EEBA's are required by the clear language of the statute."

The RSIA establishes a requirement "to provide emergency escape breathing apparatus suitable to provide head and neck coverage with respiratory protection for all crew members in locomotive cabs on freight trains carrying hazardous materials that would pose *an inhalation* hazard in the event of release" (Emphasis added). The italicized words were omitted from Labor's comment, but they are significant in the context of the subject being discussed. FRA considered whether to require the provision of EEBA's to railroad employees on trains that transport intermodal shipments of PIH materials prior to publishing the NPRM. However, FRA excluded intermodal shipments from the requirements in this section for two primary reasons. First, railroads generally do not accept PIH materials in intermodal shipments. Second, the inhalation risk related to small quantities of covered substances in the event of a release from an intermodal

shipment is relatively low based on the quantities and packaging of materials carried by such trains. Given these factors, there is not a substantial risk that the release of all or most of an intermodal shipment of a PIH material would present a risk necessitating an EEBA. Therefore, FRA has decided not to change the proposed language concerning intermodal shipments in § 227.201(b)(1).

One issue that was not raised in § 227.201(b) of the 2010 NPRM was whether there would be a limited exception for foreign operations. AAR notes that a provision of FRA's alcohol and drug regulation, 49 CFR 219.3(c), exempts limited foreign operations from some of the requirements of that regulation. The exemption in § 219.3(c) applies to foreign railroad operations extending up to 10 miles in the United States. AAR suggests that FRA should include the same type of exemption in proposed part 227, subpart C. FRA does not find such an exemption reasonable but welcomes additional comments on whether it should be included.

4. Comments on Proposed § 227.203(b), with FRA's Response

FRA received numerous comments on proposed § 227.203(b), which would have required a railroad to select a respirator type that is certified for escape-only purposes by NIOSH pursuant to 49 CFR part 84 or ISO pursuant to ISO 23269-1:2008. Most of the comments pertained to FRA's inclusion of devices that could be built using a standard other than the one established by NIOSH, specifically, whether it is appropriate to allow reliance on the ISO standard. As a result of these comments, FRA has edited the paragraph in the proposed rule to correct the misstatement that ISO respirators are certified. However, FRA continues to propose that railroads be allowed to select EEBA's that comply with ISO standards as long as the devices have a minimum breathing capacity of 15 minutes. In addition, FRA has added two additional international standards, BS EN 13794:2002 E, "Respiratory Protective Devices—Self-Contained, Closed-Circuit Breathing Apparatus for Escape—Requirements, Testing, Marking

(November 2002),” and BS EN 1146:2005: E, “Respiratory Protective Devices—Self-Contained, Open-Circuit Compressed Air Breathing Apparatus Incorporating a Hood for Escape—Requirements, Testing, Marking (September 2005).” Further explanation of FRA’s decision is provided in the following discussion.

NIOSH suggests that FRA should modify proposed § 227.203(b) to prohibit ISO-compliant respirators in lieu of NIOSH certification because it “may lead to confusion in the regulated community.” FRA understands that NIOSH is the only entity in the United States that certifies respirators. However, FRA finds that permitting respirators compliant with other standards, such as ISO and BS EN, will permit railroads to select from a broader range of devices using different technologies that afford an equivalent level of protection as the NIOSH-certified respirators. Accordingly, FRA proposes to allow for reliance on the ISO or BS EN standards.

Scott Health and Safety Comments (Scott) and the ISEA raise concerns about FRA’s use of the term “certified” in proposed § 227.203(b) as it relates to ISO standards. As proposed in the 2010 NPRM, the paragraph stated that the railroad must ensure that the type of respirator selected has been certified by NIOSH pursuant to 42 CFR part 84 or by the ISO pursuant to ISO 23269-1:2008. Scott requests clarification on the following discrepancies between the proposed alternate certification paths (NIOSH vs. ISO) and the alternate standards (42 CFR part 84 vs. ISO 23269-1:2008). It notes that “while NIOSH provides a clear and effective certification program, it is not clear how respirators would be certified according to ISO standards and who would provide oversight to ensure these standards were maintained.” Similarly, the ISEA states that ISO develops standards, but does not issue certifications. As a result, any claim that a respirator complies with an ISO standard must rely on testing, and any attestation of conformity to the ISO standard must be issued by the manufacturer of the device or a third-party certification organization. Therefore, ISEA asserts that, if FRA plans on accepting the provision of respirators

manufactured to the voluntary ISO standard, then it must clearly state whether independent certification is required or whether it will accept the manufacturer's declaration of conformity to the standard.

Scott and ISEA raise valid points on the use of the term "certification." FRA understands that ISO does not certify devices as NIOSH does. Instead, it establishes standards that the manufacturer of the device must meet to declare its device compliant with the ISO standard. Therefore, clarification is needed to avoid confusion in the marketplace and to ensure that the devices provided by the railroads pursuant to this regulation comply with its terms. FRA has modified the proposed language in § 227.203(b) to state that the type of respirator selected by a railroad must be certified for an escape-only purpose by NIOSH, pursuant to 49 CFR part 84, or must be declared by the manufacturer, based on verifiable testing by the manufacturer or an independent third party, to meet the equivalent standard ISO 23269-1:2008 and have a minimum breathing capacity of at least 15 minutes, as specified in proposed § 227.203(d)(1).

Additionally, Scott and ISEA raise the question that if both NIOSH and ISO certification options are acceptable, then how will FRA's regulation and AAR's specification reconcile specific differences between the standards? As an example, Scott cites to 42 CFR part 84, which specifies a maximum CO₂ inhalation of 0.5 percent, or 1.5 percent for escape mouth bit devices, and compares it to ISO 23269-1:2008, which allows for CO₂ levels of 3 percent. ISEA believes that FRA must clarify the difference in the NIOSH and ISO requirements and any required variance from either standard.

FRA does not find it necessary to clarify the differences between the NIOSH and ISO requirements. The NIOSH and ISO requirements are explicitly laid out in their respective standards. *See* 42 CFR part 84 and ISO 23269-1:2008. FRA's concern in establishing this requirement is not to compare and contrast the respective standards, but to ensure that the respirators chosen by a railroad comply with this regulation by meeting

an established minimum standard that will facilitate the escape of train employees and other occupants of a locomotive cab from a hazardous material posing an inhalation hazard should the need arise. FRA would not view piecemeal compliance with portions of the NIOSH standard, portions of the ISO standard, or portions of the EN standards as meeting the proposed regulatory requirements laid out in part 227, subpart C. However, if the type of device selected by the railroad meets the entire regimen of criteria for either the NIOSH, the ISO, or the applicable EN standard, and complies with the minimum breathing time requirements specified in proposed § 227.203(d)(1), then FRA would consider the device acceptable under the regulation.

Lastly, Scott requests clarification on whether railroads are exempt from the OSHA requirement found in 29 CFR 1910.134(d)(1)(ii), which requires employers to select a NIOSH-certified respirator. The Occupational Safety and Health Act authorizes the Secretary of Labor to promulgate standards to provide safe and healthful employment and places of employment. 29 U.S.C. 652(8), 653(b)(1), 655. However, once FRA exercises its statutory authority to prescribe standards or regulations covering a specific hazard or practice affecting the occupational health of railroad employees, as it proposes to do here, FRA's regulation of the specific area ousts any OSHA requirements covering the same area. *See* 29 U.S.C. 653(b)(1). An example would be FRA's regulations in part 227, subpart B, addressing occupational noise exposure for railroad operating employees, which covers noise exposure and hearing conservation for railroad operating employees whose primary exposure to occupational noise is in the cab of a locomotive. All other railroad employees who are exposed to occupational noise are covered by OSHA. The same holds true with respect to the provision of EEBAs by railroads. Those EEBAs that are provided pursuant to this proposed regulation would have to comply with the requirements established in part 227, subpart C. However, OSHA's regulations on respirators may be applicable to other areas where railroads provide respirators to their

employees.

5. Comments on Proposed § 227.203(c), with FRA's Response

FRA received comments on proposed § 227.203(c) from AAR and Draeger and has deleted that paragraph for the reasons explained below.

In the 2010 NPRM, proposed § 227.203(c) established a requirement that a railroad must document the adequacy of the EEBA. However, AAR notes that proposed § 227.203(b) would require railroads to use an EEBA certified by NIOSH or the ISO, both of which establish standards for measuring resistance to IDLH atmospheres. Therefore, AAR argues that if the EEBA meets either the NIOSH or ISO standard, no further showing of the adequacy of the EEBA should be necessary. As a result, it suggests that proposed § 227.203(c) be deleted. FRA agrees and has deleted proposed § 227.203(c) since the essential information that FRA seeks to require is captured by complying with either the NIOSH, ISO, or EN standard under § 227.203(b). In light of the deletion, FRA has re-designated § 227.203(d) as § 227.203(c) in this proposed rule.

While the § 227.203(c) proposed in the 2010 NPRM is being removed, FRA did receive additional comment from Draeger on this paragraph which requires discussion. Draeger contends that, except for the requirements in § 227.203(d), the proposed regulation does not establish any specific requirements concerning the EEBA's performance. Therefore, Draeger states that the proposal fails to provide the necessary regulatory text that will ensure the EEBA type chosen by a railroad will meet the intended application. FRA considers the proposed provisions of § 227.203(b) along with the specific items identified in proposed § 227.203(d) to describe adequately the necessary performance characteristics of the EEBA's.

Draeger also raises a number of issues about AAR specification M-1005 in its comments on § 227.203(c). It is concerned that a number of the factors laid out in the specification are typically not evaluated by NIOSH or ISO for industrial respirators that

are air-supplied escape breathing apparatus. These include the specification requiring protection against 10,000 ppm of anhydrous ammonia, chlorine, and other toxic inhalation hazards. Draeger suggests identifying other toxic inhalation hazards to better allow manufacturers to evaluate their respirators. Additionally, Draeger suggests that there should be specific information concerning the type of impact and vibration resistances that would be expected in a “typical locomotive cab in order to test whether a device has the necessary performance factors and structural integrity. Draeger also states in relation to AAR’s draft specification that, while vibration testing is a performance requirement for NIOSH certification of closed-circuit escape breathing respirators under 42 CFR part 84, vibration tests are not typically performed on open-circuit breathing apparatus. Finally, Draeger notes that testing on some of the specifications identified cannot be performed by NIOSH or ISO. Therefore, a third-party laboratory would need to perform the testing. Draeger questions whether FRA will accept such information if it is presented by the stakeholder for inspection. Draeger suggests that more information is needed to provide appropriate respirators to the railroad market and requests additional information be included that details more of the performance requirements than in the current specification.

The draft AAR specification is not part of the performance requirements established by FRA. Equipment vendors would need to address questions about those issues to the carriers represented by AAR. However, FRA does note that the “other toxic inhalation hazards” that Draeger asks to have identified, can be found in § 227.5, where FRA defines “PIH material.” With respect to third-party testing, and additional information detailing performance requirements, FRA believes the standard, as now proposed, provides appropriate performance criteria as long as covered railroad employees are provided at least 15 minutes breathing capacity. Were FRA to propose additional performance criteria, it would be substituting its judgment for that of NIOSH,

ISO, or EN subject matter expert entities that have developed the current standards, which FRA declines to do.

6. Comments on Proposed § 227.203(d)(1), with FRA's Response

FRA received numerous comments on proposed § 227.203(d)(1). While FRA has continued to propose this provision without substantive changes, § 227.203(d)(1), as proposed in the 2010 NPRM, has been re-designated in this proposed rule as § 227.203(c)(1) because of the deletion of § 227.203(c), discussed above.

Section 227.203(d)(1) in the 2010 NPRM proposed a requirement that the EEBA be fully charged and contain a minimum of 15 minutes of breathing capacity at the time of the pre-trip inspection that is required by § 227.207(a)(1). NIOSH suggests changing the language to require that EEBA's "be maintained and the operational readiness verified at the frequency recommended by the manufacturer, using the operational verification procedures, to ensure they contain a minimum breathing capacity of 15 minutes at the time of the pre-trip inspection required under Sec. 227.207(a)(1)." Because NIOSH does not provide an explanation for the proposed change to the paragraph, FRA is not sure of NIOSH's rationale for objecting to the language in proposed § 227.203(d)(1). The proposed paragraph covers the capabilities of the device selected, not the pre-trip inspection procedures. Therefore, FRA does not view the change suggested by NIOSH as relating to the subject matter of the proposed § 227.203(d)(1) and does not see a reason to amend this paragraph in the manner suggested by NIOSH.

Draeger asks, with respect to proposed § 227.203(d)(1), "[w]hat is the minimum escape time for a hazardous substance where the atmosphere has not been assessed for substance concentration and dissipation over distance?" Given these circumstances, it states that an EEBA with a minimum capacity of 15 minutes may not leave time for a crewmember to assist others and to escape to a safe distance away because the circumstances surrounding a catastrophic release would require a higher rate of activity

than is normal. Additionally, if an employee has suffered an injury or otherwise become disabled, they would not be able to move fast or, if needed, to move the freight train away from a densely populated location, if that were even possible. Therefore, “Draeger believes that a device which is capable of providing 30 minutes or more would be the better choice for this application.” Draeger acknowledges that providing greater breathing capacity in a device will present logistical issues for storage of devices but believes that closed-circuit devices would be a suitable option because they are considerably smaller than comparable open-circuit devices.

It is unclear what Draeger means when it asks about atmospheres that “have not been assessed for substance concentration and dissipation over distance.” Each emergency situation is different and will present its own set of difficulties. Therefore, FRA is not sure how Draeger can reach the conclusion that a 15-minute minimum breathing capacity device is inadequate without conducting an analysis of the circumstances surrounding the few incidents of catastrophic breaches to railroad tank cars that resulted in the release of a hazardous material posing an inhalation hazard. Circumstances, such as local geography and weather at the time of the release event, can lead to widely differing circumstances of concentration and distance following an accident. After analyzing the information available to it, which included the input of AAR and Labor, FRA proposed requiring a device that has a minimum breathing capacity of 15 minutes. FRA’s proposal is based, in part, on the belief that a 10-minute capacity device would be too limiting, while larger capacity devices would challenge the ability of the railroads to meet the storage requirements of the mandate, given the limited space in the locomotive cab. FRA expects that a 15-minute device will allow railroad employees to address the circumstances alluded to in Draeger’s comment. However, it is important to keep in mind that while the 15-minute breathing capacity is a minimum requirement, there is no regulatory restriction that would prohibit railroads from

providing a device that has a greater breathing capacity than what is mandated in originally proposed § 227.203(d)(1).

Labor supports FRA's proposal to require EEBA's to have a minimum of 15 minutes of useful life in the worst-case scenario. However, Labor is concerned that "any reduction in the length of time the EEBA is effective increases the likelihood of casualty or fatality resulting from the release and inhalation of an asphyxiant or PIH material." Labor notes that that train employees involved in a release of PIH materials may do two things that could negatively impact the usable length of time for EEBA. Specifically, Labor identifies "over-breathing" and the time it takes an employee to don the apparatus as problems that would be expected to reduce the length of effective breathing time of the apparatus, particularly when dealing with a stressful situation such as a catastrophic release of a PIH material. As a result, Labor urges FRA to amend the proposed rule to clarify that each EEBA provided "must have at least a 15-minute approval rating, meaning that the device must function for at least 15 minutes during 3-mph treadmill tests and 30 minutes for stationary tests." *See* 75 FR 61392.

FRA notes that the language cited in Labor's comments was taken from AAR's draft specification, M-1005, upon which FRA specifically requested comments. Based on FRA's review of information that was collected from the investigation of the Macdona and Graniteville collisions, the agency found that a minimum breathing capacity of 15 minutes should be an adequate amount of time for a wearer of an atmosphere-supplying respirator to escape an IDLH atmosphere. Experience has shown that a plume of hazardous material can travel quickly and that the train crew must have adequate breathing time to allow each crew member to move a significant distance from the plume while being protected from breathing the potentially hazardous atmosphere. According to the AAR, investigations and studies by the railroads found that "the area of destruction following a release is such that 15 minutes is a more than adequate time period to escape

the area. Requiring a device with a greater capacity would result in one that is larger and heavier than called for in this specification.” FRA has decided not to modify the language of proposed § 227.203(d)(2). The change suggested by Labor would put FRA in the position of needing to establish a testing and certification regime to ensure that the devices in use meet the specific language in the rule. FRA does not intend to do this, as the agency does not have the expertise to establish ratings for the devices.

7. Comments on Proposed § 227.203(d)(2), with FRA’s Response

FRA also received a number of comments on proposed § 227.203(d)(2), which would have required railroads to select an EEBA that provides a means of protecting an individual’s face and neck to facilitate escape. In response to the comments, FRA has amended the proposed paragraph to state that the EEBA should protect the head and neck from the irritating effects of PIH materials. FRA also has removed any reference to asphyxiants for the reasons discussed earlier. Finally, originally proposed § 227.203(d)(2) has been re-designated as § 227.203(c)(2) for the reasons discussed above.

NIOSH suggests specifying that the EEBA selected must provide a means of protecting the individual's head and neck “from the irritating effects of asphyxiants or PIH materials to facilitate escape.” In this proposed rule, FRA has amended the originally proposed § 227.203(d)(2) to incorporate the language suggested by NIOSH (excepting that asphyxiants has been deleted). FRA finds this language better reflects the purpose of the head and neck protection.

Draeger and ISEA both raise questions about originally proposed § 227.203(d)(2). Specifically, ISEA questions why face and neck protection is a requirement in proposed § 227.203(d)(2). It suggests that if face and neck protection is an important characteristic for providing additional protection to the wearer beyond protection to the lungs and respiratory system, then the regulation should define as clearly as possible the extent of neck and face coverage that is required as well as how FRA intends to assess whether

sufficient coverage has been provided. Similarly, Draeger asks for greater specification regarding what is meant by head and neck protection.

FRA has replaced “face” with “head” in this proposed rule to match the specific language of section 413 of the RSIA. While Congress did not provide any guidance on the extent of coverage necessary to comply with the statutory mandate, FRA interprets this language to require a device that protects the employee’s nose and throat from inhalation and protects the employee’s eyes from irritation during an escape from a hazardous atmosphere. This protection can be afforded by a respirator with a face piece or a device with a hood as long as the protection is effective.

Labor contends that originally proposed § 227.203(d)(2) should also require railroads to provide the type of device that is easiest to don. Labor urges FRA to require the use of hooded-type devices rather than full-face masks. Labor relies on FRA’s acknowledgement in the preamble to the 2010 NPRM, that hoods are more versatile because they are universally fitting, compensate adequately for eyewear, and allow for facial hair and differing facial features. Additionally, Labor notes that hoods are easier to wear and faster for employees to don, which would allow those employees to assist others who are disoriented or injured.

While FRA recognizes that hoods allow for universality in use and understands that some railroads intend to make use of hooded devices, FRA does not find that requiring hoods in all circumstances is warranted. As a result, it has chosen not to propose mandating hooded devices.

8. Comments on Proposed § 227.205, with FRA’s Response

FRA received comments on proposed § 227.205. FRA modified the provision in this SNPRM to delete the word “asphyxiant,” but has otherwise not changed the proposed section.

Proposed § 227.205 seeks to establish the minimum requirements for storing

EEBAs. The essential requirements are that the storage facility must: (1) where applicable, prevent deformation of the face piece and exhalation valve; (2) protect the device from incidental damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals; (3) provide ready access for each subject employee in the cab; and (4) provide a means to locate the EEBA under adverse conditions, including darkness or disorientation. The section, as proposed, does not establish requirements for distributing EEBA to covered employees.

Labor suggests that proposed § 227.205 should include a requirement that EEBAs be permanently kept in a storage facility that is mounted in each locomotive cab. Labor's rationale for requiring EEBAs to be permanently mounted in the locomotive cab rests on multiple factors. First, it contends that employees on freight trains traveling in the same corridor on adjacent tracks or following those freight trains that are transporting asphyxiants or PIH material should also be provided EEBAs because they are in danger of an inhalation hazard if the material is released. Labor believes that requiring EEBAs to be permanently mounted in locomotive cabs will result in maximum availability of EEBAs for those employees working on freight trains that are not directly transporting asphyxiants or PIH material. Second, Labor argues that "employees already are required to carry many items to properly perform their duties and address the circumstances of their job." Adding an additional item, it contends, would be overly burdensome to train employees. Third, any option other than permanently mounting EEBAs in the locomotive cabs will result in the railroads passing off the responsibility for ensuring the functionality of EEBAs, which could result in harassment, intimidation, and disciplinary actions against employees who request a delay or postpone the departure of trains to replace or repair EEBAs. Lastly, Labor argues that if a railroad decides to require an employee to assume custody of an EEBA, then FRA will inevitably end up using its resources to investigate individual events and circumstances surrounding an employee's

request to have an EEBA repaired or replaced.

The current proposed language in § 227.205 follows the requirements of the RSIA mandate while allowing railroads subject to this proposed rule to provide EEBA's in a way best suited to their operations. Given the attendant costs and benefits, FRA proposes to allow railroads to find the best way to provide EEBA's in a manner that fully meets the RSIA mandate and Congressional intent. Furthermore, as FRA cannot anticipate the changes in technology that might affect the types or sizes of EEBA's or changes in the technology and design of locomotive cabs that could impact the mounting and storage of EEBA's the proposed regulation will allow railroads to utilize the latest equipment.

9. Comments on Proposed § 227.207, with FRA's Response

FRA received numerous responses to proposed § 227.207, which would have required railroads to establish a program for inspection, maintenance, and replacement of EEBA's and to establish certain inspection procedures. In response to comments from AAR, FRA has limited the document retention period for pre-trip inspections to 92 days. FRA has also removed reference to asphyxiants in this section of the proposed rule for the reasons provided above.

NIOSH comments that the 2010 NPRM fails to specify regular intervals in which EEBA inspections are to occur. It recommends incorporating the OSHA inspection requirement from 29 CFR 1910.134(h)(3)(i)(B), which states, "[a]ll respirators maintained for use in emergency situations shall be inspected at least monthly and in accordance with the manufacturer's recommendations and shall be checked for proper function before and after each use."

FRA proposes a requirement for regular inspections in § 227.207(a)(1), which includes a pre-trip inspection prior to using a locomotive in a train that is transporting a PIH material, and in § 227.207(a)(2), which includes periodic inspections based on the recommendations and instructions of the manufacturer. FRA's inspection requirements

do not vary significantly from the OSHA requirements. Notwithstanding this, due to the operational nature of the railroads, FRA feels that its criteria are better suited to this industry than specifying an established periodic inspection as used by OSHA. Since the railroad would not be permitted to operate a locomotive in a train where operable devices are absent, the necessity of having an arbitrary inspection schedule is not needed.

The company, 3M, comments that it supports the rulemaking, but that it has concerns about proposed § 227.207(b). 3M believes that this proposed paragraph implies the necessity of using of RFID tags to identify specific equipment. The commenter encourages FRA “to separate the RFID and inspection database requirements from the EEBA specification ... because there is no RFID frequency specified for the tag, and there are multiple frequencies available that are not cross compatible.” The company states that handheld RFID readers currently on the market operate on a specific frequency, which could present problems when locomotives are interchanged if a foreign railroad is required to perform periodic EEBA inspections. Absent identical RFID tags among interchanging railroads, the railroads may not be able to meet the proposed inspection requirements.

It appears that 3M may have confused AAR’s draft specification with FRA’s proposed regulatory requirements. The draft specification prepared by AAR is not a part of this proposed regulation. Proposed § 227.207(b) does not require the use of RFID tags. The proposed provision merely establishes a requirement of pre-trip and periodic inspections. It leaves the logistics of performing such inspections to the railroads. FRA understands, however, that AAR is considering using RFID tags to track inspections and its member railroads may want to consider 3M’s comments in determining the most efficient way to satisfy the regulatory requirements of § 227.207(b). Additionally, 3M’s comments may factor into what procedures a railroad will use to ensure interchangeability, which is an essential element to a railroad’s general EEBA program.

See § 227.211(b)(3).

AIHA suggests that formal inspections of EEBA's under § 227.207 should be conducted at the same time as the locomotive quarterly inspection. It notes that the current plan is to use a RFID tag for identifying and tracking each EEBA, which would allow for each unit to be assigned a unique identifier that would also identify the owning railroad. The RFID tag would allow for easy scanning during the quarterly inspection to document what units are currently mounted in each locomotive and would verify that each EEBA is still in proper working order with the required oxygen or air level, the case intact, seals in place, and no tampering has occurred. AIHA states that railroads can ensure a seamless process for inspections by integrating EEBA inspections with locomotive inspections, which are well-established within the railroad industry.

It appears that AIHA, like 3M, has made the assumption that the discussion in the NPRM covering the AAR draft specification has been made part of the proposed rule in some manner. That is not FRA's intent. FRA published input from both the industry (AAR) and labor organizations, provided during the development of the NPRM, to invite feedback and gain a broader understanding of the issues raised by these stakeholders. AAR's input reflects the intentions of larger railroads but does not necessarily represent how smaller railroads would respond to this proposed rule, given their unique set of economic constraints.

The language in proposed § 227.207 merely requires that each railroad establish and comply with a written program for inspection, maintenance, and replacement of EEBA's, which includes pre-trip and periodic inspections of the EEBA's. FRA understands that it is AIHA's position that this proposed schedule is unnecessary and over-burdensome. In their comments, they cite the chemical, paper, mining, and maritime industries, which require respirator inspection frequencies of 30-90 days. The AIHA would like to see quarterly inspections of EEBA's.

FRA is continuing to propose the requirement for pre-trip inspections, because the nature of railroading demands that the EEBA must be inspected pre-trip. It is a proposed requirement that an EEBA for each employee will be present in the locomotive cab prior to departure thus facilitating the pre-trip inspection. This is so regardless of the manner in which the EEBA is provided, whether it is issued to an individual, or mounted within the locomotive cab, or provided in some other way. The nature of this pre-trip inspection may be as simple as visually inspecting and verifying that the case has not been tampered with and that all gauges and other indicators are in an acceptable range.

FRA envisions that the pre-trip inspection will be a quick check to ensure that the appropriate accompaniment of EEBA's is provided and that those devices are charged to provide a minimum 15-minute breathing capacity, as well as any of other necessary checks that the manufacturer recommends. While this type of check could potentially involve using an RFID tag, FRA is not proposing that each railroad "hav[e] each unit in a computer database ... to track each unit and identify when units are due for factory testing." Such a requirement presumes a level of financial resources that are not necessarily available to some short line carriers who are covered by this rule.

Labor urges FRA to modify proposed § 227.207 to make it clear that EEBA's provided pursuant to this regulation must be fully charged with an approval rating of 15 minutes during a 3-mph treadmill test. Labor also proposes that FRA establish a "quick check" inspection process for railroad employees that would include observing an external gauge that can be easily viewed and understood by all employees. Specifically, Labor states that the EEBA should have a gauge with a needle to indicate the length of time the device will operate.

FRA does not believe that a pre-trip or periodic inspection should involve re-verifying a specification since it is unclear how this specification could be verified outside of an established testing and certification regime. FRA is aware that different

types of devices have different means of verifying readiness for use. Escape devices that rely on pressurized tanks of air generally have a pressure gauge such as that mentioned in Labor's comment. Other devices, such as combination chemical scrubber/oxygen supply devices, may only have a "go/no go" window. While FRA stated above that it envisions a "quick check" pre-trip inspection process that verifies that appropriate number of EEBA's have been provided and that such EEBA's are charged to provide a minimum of 15 of minutes breathing capacity, FRA finds that, beyond these basic factors, the manufacturer is the best source of information on the manner in which a given device is verified as ready for service.

AAR agrees with FRA's decision in proposed § 227.207(a)(2) to require periodic inspections "in a manner and on a schedule in accordance with the manufacturer's instructions"; however, it comments that the proposed pre-trip inspection of EEBA's required by this proposed section could be overly burdensome. As an alternative, AAR suggests that the appropriate inspection procedure should depend on how a railroad chooses to deploy EEBA's. While AAR agrees that a pre-trip inspection would be appropriate if a railroad were to issue EEBA's directly to its employees, either permanently or for a single trip, it believes a calendar day inspection, as part of the required 49 CFR 229.21 inspection, is more appropriate if a railroad chooses to mount EEBA's permanently in locomotive cabs.

The RSIA requires that EEBA's be provided to all crewmembers in the locomotive cab of a freight train transporting a hazardous material that would pose an inhalation hazard in the event of release. FRA considers pre-trip inspections the most effective method of ensuring compliance with the statutory mandate. FRA must anticipate many different operating scenarios and means of providing the EEBA's to crews. FRA can envision scenarios where at least two crews could be relying on locomotive-mounted EEBA's and, absent a pre-trip inspection, the second crew would have no means to verify

that the devices present are ready for service. As an example, if EEBA's were inspected as part of calendar day inspection under part 229, the inspection could occur well after the crew (or crews) used a locomotive to transport a PIH material. This is because the calendar day inspection could be performed legally after the crew or crews have completed their duties, as long as the inspection was performed by midnight on the calendar day that the locomotive was used. As a result, calendar day inspections would not assure that the required EEBA's were in working order for the crew or crews using the locomotive at the time that the train is transporting a PIH material. Therefore, FRA does not think it is appropriate to change the proposed pre-trip inspection requirement.

Additionally, AAR asks that FRA clarify whether a pre-trip inspection consists of a quick visual inspection to ensure that the EEBA's appear to be in working order. It notes that because EEBA's are sealed in air-tight containers, FRA cannot expect railroad employees to break the seal of the device to inspect it. FRA has discussed what it envisions as part of the pre-trip inspection in the preceding paragraphs; however, AAR's comment presumes that the type of device chosen by AAR will be used universally in the railroad industry. FRA has written the proposed regulation to require the device selected to have certain characteristics while allowing railroads to choose devices best suited to their operations. FRA expects that the type of device selected by each railroad will determine the nature of the inspection required, presumably based on the recommendations of the manufacturer of the device.

AAR opposes the recordkeeping requirements in § 227.207(b)(2). Its objection is not targeted at the requirement to keep records of inspections performed pursuant to manufacturer instructions, but to the requirement that records of pre-trip inspections be kept for one year. It asserts that keeping pre-trip inspection records for one year would not provide a safety benefit. AAR suggests that if FRA were to require daily inspections (as opposed to pre-trip inspections) in instances where EEBA's are permanently installed

in the locomotive cab, then keeping records of those inspections as part of the daily inspection report required by 49 CFR 229.21 would not be overly burdensome given that daily inspection records are already maintained and kept for a period of 92 days. However, AAR contends that railroads should not be burdened with new recordkeeping requirements for pre-trip inspections, which would not, according to AAR, yield useful information.

AAR's comment draws an analogy to the daily inspections required under 49 CFR 229.21, but FRA believes a more appropriate analogy is the pre-trip inspection of a train's braking system as required under 49 CFR 229.46. While daily inspections may be more convenient, the nature of the device being inspected, along with the intended use (i.e., emergency escape) is similar in the context of (personal) safety criticality to ensuring the braking systems in the consist are working. Nevertheless, FRA does agree that there is little reason to keep pre-trip inspection records for one year. The proposed period of records retention for pre-trip inspections has, therefore, been reduced to 92 days in this SNPRM. While FRA does view pre-trip inspection records as necessary to ensure compliance with the RSIA mandate, it should be noted that the record of pre-trip inspections, depending on the device selected, may be as simple as the check-off/initialed card used on fire extinguishers. FRA also understands that some of the Class I carriers are considering using RFID tags to track and record the inspection of individual EEBA units. The use of this technology could possibly minimize the inspection and recordkeeping burden.

Finally, AAR provided comments about proposed § 227.207(d), which requires railroads to maintain accurate records of return, maintenance, repair, or replacement of each required EEBA for a period of three years. AAR questions whether this provision would allow for railroads to arrange for EEBA suppliers to maintain these records. It is FRA's view that such an arrangement would be acceptable; however, as AAR notes, the

railroad would remain responsible for any failure on the part of a third party to maintain such records for the required time period or to provide FRA reasonable access to the records.

10. Comments on Proposed § 227.209, with FRA's Response

FRA received numerous comments on proposed § 227.209 and has adopted the provision without change, except for deleting reference to asphyxiants. Section 227.209 establishes requirements for a railroad's program of instruction on EEBA's. The section sets out a number of subjects that must be covered in training including the importance of proper fit, usage, and maintenance in the effectiveness of the EEBA; the device's capabilities and limitations; and how to use an EEBA effectively in an emergency situation. Additionally, following initial training, it requires periodic training once every three years.

NIOSH recommends that proposed § 227.209 require annual expectation training (i.e., training for use of Closed-Circuit Self Contained Escape Respirators that simulates the initiation procedures, heat, and breathing resistance the user will experience in the respirator's performance) and "hands-on" training that goes over the appropriate donning procedures. FRA expects that the proposed language in § 227.209(b)(4), which requires training on how to inspect, put on, remove, and use the EEBA and how to check the seals of the EEBA, will ensure that railroad employees are sufficiently familiar with the EEBA's provided by their employing railroads.

NIOSH, ISEA, and Draeger also recommend that proposed § 227.209 be modified to follow Mine Safety and Health Administration requirements for quarterly training of underground coal miners, *see* 30 CFR 75.1504, which requires that each miner undergoes "hands-on" training for donning and transferring of self-rescue devices as part of the required evacuation drill at the start of underground work, with this training provided at least four times a year. Moreover, ISEA and Draeger raise specific concerns about the

adequacy of training personnel on a triennial basis because of concerns that people will forget the training received.

FRA believes there are significant differences in the operational practices and risks faced by the employees in these two populations. Miners report to a fixed site each day and face a significant frequency of potential exposure to the materials against which these devices are intended to protect. Railroad operating employees often report to duty at different locations each day, and the frequency of potential exposure to inhalation hazards are orders of magnitude less. FRA does not view the three-year interval between training sessions as presenting an obstacle to effective use of EEBA's in the very rare event that the need for a device arises.

It is also important to keep in mind that the proposed instructional program established in § 227.209 is a minimum requirement. Railroads are encouraged to provide additional relevant information depending on the types of EEBA's selected. FRA is aware that, among the larger carriers, on-line refresher training is often available to employees on an ad-hoc basis. FRA also believes that the pre-trip inspections and contact with the devices will keep their use "front of mind" for the purposes of encouraging employees to take advantage of the available on-line resources.

Labor acknowledges that the RSIA mandates that appropriate training for the use of the EEBA's be included in the rule, but it is wary that testing will be used as a way to withhold certain employees from service. It contends that even though the RSIA does not require testing, it agrees that the employees should be proficient in the use of the EEBA. However, Labor is "concerned that some railroad will establish unachievable, unnecessary or excessive performance requirements that, if not satisfied, will be used to hold employees out of service." As a result, Labor requests that FRA modify proposed § 227.209 to remove language requiring employees demonstrate knowledge of each of the elements in § 227.209(b) and that employees only be required to show proficiency in how

to inspect, put on, remove, and use the EEBA and how to check the seals of the EEBA.

FRA finds the language proposed in § 227.209(b) as appropriate for the proper use of these devices. The language requiring a demonstration of knowledge was taken directly from OSHA's regulation covering the provision of respirators in the workplace. *See* 29 CFR 1910.134(k)(1). The requirement is intended to ensure that after having been trained, the subject employees have the knowledge and skills to use the devices properly. Both the railroad and its employees have a vital interest in ensuring the training is both effective and retained. FRA does not believe the railroads have any incentive to establish "unachievable, unnecessary or excessive performance requirements" in this regard.

AAR requests the deletion of proposed paragraph § 227.209(b)(3), which requires instruction on how to use the EEBA effectively in emergency situations, including situations in which the EEBA malfunctions. It does not understand what FRA envisions will be taught other than to leave the scene as quickly as possible. As with the other provisions in proposed § 227.209(b), proposed paragraph (b)(3) was borrowed directly from OSHA's regulation covering the provision of respirators in the workplace. *See* 29 CFR 1910.134(k)(1)(iii). FRA finds no reason to delete the provision. While these circumstances are likely to be rare, FRA believes that, as a basic principle of emergency preparedness, it is useful to anticipate the kinds of scenarios that might occur and plan for them. For additional guidance, railroads can look to OSHA. *See, e.g.,* 63 FR 1152, 1259 (Jan. 8, 1998).

11. Comments on Proposed § 227.211, with FRA's Response

AAR comments that there is no reason to require in proposed § 227.211(b)(1) that a railroad identify by name the employee managing the railroad's general EEBA program. AAR notes that there could be frequent changes in the specific individual in charge of the general EEBA program. As a result, AAR suggests deleting the proposed requirement that the individual be identified by name. While FRA is concerned with

AAR's assertion that the name of the individual managing a railroad's general EEBA program may change frequently, FRA is deleting the proposed requirement that the person in charge of implementing and managing the railroad's general EEBA program be identified by name. It is sufficient to identify the person managing the general EEBA program by title, with all additional requirements remaining as proposed.

12. Comments on Proposed § 227.217, with FRA's Response

FRA received comments from Labor on proposed § 227.217. This provision proposed to establish a staggered compliance schedule, with Class I railroads required to comply with the requirements of part 227, subpart C no later than 24 months from the effective date of the final rule, Class II railroads required to comply no later than 30 months from the effective date, and Class III railroads required to comply no later than 36 months from the effective date.

Labor strongly encourages FRA to shorten the implementation schedule to no more than 90 days following the date of publication of the final rule. Labor contends that EEBA's "will be a necessary safety overlay for the totally unpredictable work schedules that are commonplace in the industry today." Moreover, Labor contends that there is not a logical reason to delay the implementation in the manner suggested by AAR, and proposed by FRA in the NPRM, when devices are readily available at this time.

While FRA understands the desire for more immediate implementation of EEBA programs, FRA cannot justify shortening the periods proposed in the 2010 NPRM for compliance to 90 days. In the short term, it is not necessarily true that the devices are readily available in the quantities needed. The shortened time frames proposed by Labor would also strain the capabilities of the railroads with respect to developing the management infrastructure for deploying and maintaining the devices, developing the required written programs and training, and scheduling and conducting the training for all of the operating and other employees likely to be covered. However, given the length of

time since the publication of the RSIA mandate as well as FRA's issuance of guidance in 2016 the railroads have been on notice about the need to provide EEBA's. Therefore, FRA proposes shortening the compliance schedule from the original NPRM and now proposes that Class I railroads be required to comply with the requirements of part 227, subpart C no later than 12 months from the effective date of the final rule, Class II railroads be required to comply no later than 12 months from the effective date, and Class III railroads be required to comply no later than 18 months from the effective date.

VIII. Section-by-Section Analysis

PART 227—OCCUPATIONAL SAFETY AND HEALTH IN THE LOCOMOTIVE CAB

FRA proposes to change the name of the part from "OCCUPATIONAL NOISE EXPOSURE" to "OCCUPATIONAL SAFETY AND HEALTH IN THE LOCOMOTIVE CAB" in order to reflect the broader subject matter of the part. Previously, part 227 contained regulations related only to dangers from occupational noise exposure. Part 227 is the most natural place to put the proposed regulations related to the provision of EEBA's because the occupational noise regulations and the EEBA regulations both concern dangers to the occupational safety and health of locomotive cab occupants. However, the inclusion of the proposed EEBA regulations requires broadening the name of the part to accurately capture the new subject matter that is now covered in that part.

Subpart A—General

Section 227.1 Purpose and Scope.

FRA proposes to amend this section to reflect the expanded purpose and scope of this part. In comparison to the NPRM, FRA has modified paragraph (c) of this section in the final rule to remove reference to asphyxiants.

Section 227.3 Applicability.

FRA proposes to amend this section so that paragraphs (a) and (b) apply to subpart B only and that the title mentioned, “Associate Administrator for Safety,” is updated to reflect the current title, “Associate Administrator for Railroad Safety/Chief Safety Officer.” New paragraphs (c) and (d) define the types of railroad operations to be covered by subpart C. In particular, subpart C applies to a railroad that transports an in-service freight train that carries a PIH material. FRA has removed the references to asphyxiants that were in the NPRM, including a residue of such PIH material, on track that is part of the general railroad system of transportation. *See* 49 CFR part 209, appendix A. If a railroad does not haul such a material on the general system, it is not subject to this subpart. It should be noted that, with some exceptions, common carriers by railroad have a “common carrier” obligation to accept for rail transportation a PIH material if it is properly prepared for transportation. If a railroad accepts and transports a tank car containing a load or residue of a PIH material in an in-service freight train, even if the railroad has never done so before, the railroad would become subject to this rule. FRA realizes that triggering the applicability of this rule upon the company’s first transporting of a PIH material in a freight train could delay the transportation of such material if the company did not voluntarily take the steps required by the rule (e.g., preparation of general EEBA program, procurement and distribution of EEBA’s, and instruction of employees in the program) in advance. Further, a delay related to compliance with this proposed rule could conflict with the railroad’s duty to expedite the transportation of hazardous material, pursuant to the Hazardous Materials Regulations at 49 CFR 174.14. Accordingly, FRA sought comments on this aspect of the proposal, but received none.

Section 227.5 Definitions.

The proposed rulemaking would amend this section to add definitions for key terms used in subpart C. The terms defined are set forth alphabetically. FRA intends

these definitions to clarify the meaning of the terms for purposes of this part. Many of these definitions have been taken from the regulations issued by OSHA and NIOSH and are widely used by safety and health professionals, such as the definition of “immediately dangerous to life or health (IDLH).” A definition of “PIH material” is included in this SNPRM to ensure that the universe of materials covered by this regulation is adequately described.

Section 227.15 Information Collection.

FRA proposes to amend this section to note the provisions of this part, including subpart C, that have been reviewed and approved by OMB for compliance with the Paperwork Reduction Act of 1995. *See* 44 U.S.C. 3501 *et seq.*

Subpart B—Occupational Noise Exposure for Railroad Operating Employees

FRA proposes a set of minor corrections to this subpart. The term “Class 1” is removed wherever it appears and replaced with the corrected term “Class I.” The incorrect term appeared in, for example, § 227.103(a)(1).

Subpart C—Emergency Escape Breathing Apparatus Standards

Section 227.201 Criteria for Requiring Availability of EEBA in the Locomotive Cab.

Proposed section 227.201(a)(1) requires that an EEBA be provided by a railroad to each of its train employees, direct supervisors of train employees, deadheading employees, and other employees designated by the railroad in writing and at the discretion of the railroad who are required to work in or occupy the cab of any locomotive of one of its covered trains (i.e., an in-service freight train that is transporting a PIH material). The EEBA provided must have been selected in accordance with the criteria in § 227.203. Moreover, the EEBA provided shall have been inspected and determined to be in proper working condition under § 227.207.

Proposed section 227.201(a)(2) prohibits utilizing a locomotive to transport a PIH material in an in-service freight train unless each of the employees identified in paragraph

(a)(1) in the cab of the locomotive has access to an EEBA that was selected in accordance with § 227.203 and that has been inspected and is in proper working order pursuant to § 227.207. Paragraph (a)(2) makes clear that it is not enough for a railroad to merely issue an EEBA to an employee, e.g., as a uniform item; the EEBA must be physically available to the employee in the cab of the covered train. For instance, it is not a defense to a violation of § 227.201(a)(2) that the railroad provided the EEBA to the employee and instructed the employee to have it while in the cab, but the employee lost or forgot it.

Proposed section 227.201 also includes exceptions to its general requirements in paragraph (b). FRA excludes trains that contain PIH materials exclusively in intermodal containers from the requirements in this section. Further, employees who are involved in activities, such as moving a locomotive coupled to a car or group of cars containing a PIH material within a locomotive maintenance facility, or who make incidental movements for the purpose of inspection or maintenance, are also exempted from coverage.

Proposed paragraph (c) establishes that, notwithstanding the exceptions identified in § 227.201, any employee who is found to have willfully tampered with or vandalized an EEBA will be subject to subpart C for enforcement purposes. As a result, an employee to whom the railroad is not required to provide an EEBA may become subject to this subpart by vandalizing or willfully tampering with an EEBA. By proposing this paragraph, FRA intends to foreclose a loophole that otherwise would preclude FRA from pursuing enforcement actions against mechanical employees and other employees who may have access to EEBA's, but for whom the railroads are not required to provide a device by these regulations.

Section 227.203 Criteria for Selecting EEBA's.

This proposed section provides the basis for selecting an EEBA. *See* general discussion at V. Selection of the Appropriate EEBA by Railroads, above. The proposed

requirements for selection of EEBA are based on the nature and extent of the potential hazard to be faced. Due to the varying modes of toxicity and physical state of commodities carried by railroads, the selection of EEBA types is limited to those that supply a breathable atmosphere to the wearer, rather than types that simply filter out the toxic material. Filtering EEBA cannot provide protection from gasses that can displace the oxygen in the atmosphere. Filtering EEBA approved for protection against specific materials usually are not approved for others of different chemical characteristics and generally have an upper concentration limit on their protective capabilities.

Paragraph (a) of § 227.203 proposes to require a railroad to select an atmosphere-supplying EEBA that protects against all PIH materials (including residues of such commodities) that are being transported by an in-service freight train. To ensure that the EEBA have met a standard set of testing criteria, paragraph (b) requires the selection of a NIOSH-certified (42 CFR part 84) or ISO-compliant (ISO 23269-1:2008) EEBA, with 15-minute minimum breathing capacity. In addition, FRA has proposed language to paragraph (b) to permit selection of devices that comply with BS EN 13794:2002 or BS EN 1146:2005.

To ensure that the EEBA provides adequate oxygen to allow train employees to extricate themselves from an IDLH atmosphere, in paragraph (c)(1), FRA has proposed that the EEBA must contain a minimum breathing capacity of 15 minutes under § 227.207(a)(1).

In paragraph (c)(2), FRA addresses head and neck protection. The EEBA type that is selected by a railroad must facilitate escape from a hazardous atmosphere by providing a means of protecting a user's nose and throat from inhalation hazards while also protecting the user's eyes from irritation.

Section 227.205 Storage Facilities for EEBA.

This proposed section addresses the mandate in the RSIA that the rule require

railroads to “provide convenient storage in each freight train locomotive to enable crewmembers to access such apparatus quickly.” FRA has adapted the storage requirements promulgated by OSHA at 29 CFR 1910.134(h)(2) to this proposed rule.

Section 227.207 Railroad's Program for Inspection, Maintenance, and Replacement of EEBA's; Requirements for Procedures.

This proposed section requires each railroad to establish and carry out procedures intended to ensure that EEBA's required to be present in the locomotive cabs are fully functional. This section is adapted from OSHA's inspection documentation requirements. *See* 29 CFR 1910.134(h)(3)(iv). Since the EEBA's selected may have differing requirements for inspection, maintenance, and replacement, this section is, for the most part, written for as a general standard. However, minimum repair and adjustment requirements also have been adapted from OSHA's regulations. *See* 29 CFR 1910.134(h)(4).

In paragraph (b), FRA proposes that railroads create and maintain pre-trip and periodic inspection records and retain these records for a period of 92 days and one year, respectively. Paragraph (d) proposes to require railroads to create and maintain an accurate record of all turn-ins, maintenance, repair, and replacement of EEBA's required by paragraph (c) of this section, including EEBA's that are used; and retain these records for three years.

Section 227.209 Railroad's Program of Instruction on EEBA's.

This proposed section identifies the elements of the instructional program that the railroad must establish and carry out for train employees and other employees who are part of the railroad's general EEBA program under § 227.211 and will be provided with EEBA's. The elements outlined in this section are partly adapted from OSHA's regulations. *See* 29 CFR 1910.134(k). The program proposed by this section should be

considered the minimum, and the railroads are encouraged to provide additional relevant information depending on the types of EEBA's selected.

Proposed paragraph (b) requires that any railroad transporting a PIH material must provide sufficient training to its subject employees. Such employees must be able to demonstrate knowledge concerning why an EEBA is necessary; how improper fit, usage, or maintenance can compromise the protective effect of an EEBA; the limitations and capabilities of the type of EEBA that has been provided by the railroad, including the limited time for use; how to deal with emergency situations involving the use of EEBA's or if an EEBA malfunctions; how to inspect, put on, remove, and use an EEBA, including the inspection of seals; procedures for maintenance and storage of EEBA's; the selection criteria for EEBA's under § 227.203, employee responsibilities under subpart C; employee rights concerning access to records; and identification of hazardous materials that are classified as PIH materials. FRA is particularly concerned that the employees know the limitations of the EEBA's provided so that the employees can avoid circumstances that would lead to reliance on the EEBA's for conditions or time frames beyond EEBA capabilities.

This proposed program may be integrated with the railroad's program of instruction on the railroad's operating rules required by 49 CFR 217.11 or its program of instruction for hazmat employees under 49 CFR 172.704. Under 49 CFR 172.704(a)(3)(ii), for example, hazmat employees (which includes crews of freight trains transporting hazardous material), must receive "safety training" on means "to protect the employee from the hazards associated with hazardous materials to which they may be exposed in the workplace, including special measures the hazmat employer has implemented to protect employees from exposure."

Proposed paragraph (c) establishes the timing of the initial and refresher training. Initial instruction must occur no later than 30 days prior to the date of compliance with

subpart C for the subject railroad. New employees must receive initial instruction either by 30 days before the applicable date of compliance with subpart C or prior to being assigned to jobs where EEBA's are required to be provided on a locomotive, whichever is later. The initial instruction must be supplemented with periodic instruction at least once every three years.

Proposed section 227.209(d) requires railroads to create and maintain an accurate record of employees instructed in compliance with § 227.209; and retain these records for at least three years.

Section 227.211 Requirement to Implement a General EEBA Program; Criteria for Placing Employees in the General EEBA Program.

In this proposed section, FRA requires railroads subject to subpart C to adopt and comply with a general EEBA program to ensure that the selection and distribution of the EEBA's is done in a technically appropriate, sustainable manner and supported by a comprehensive set of policies and procedures. These issues have already been discussed in detail at IV. FRA-Sponsored Study and V. Selection of the Appropriate EEBA by Railroads, above. Many of the procedures will likely be used as a basis for aspects of the required instructional program.

In paragraph (b)(1), FRA proposes that each railroad's general program identify the railroad's EEBA manager by title. The important concern is that the EEBA manager is qualified to oversee the program.

Proposed section 227.211(b)(4) requires the following individuals to be placed in the railroad's general EEBA program: (1) employees of railroads subject to this subpart who perform service subject to the provisions of the hours of service law governing "train employees," *see* 49 U.S.C. 21103, in the locomotive cabs of freight trains that transport a PIH material; (2) the direct supervisors of these train employees; and (3) any employees who deadhead in the locomotive cabs of such trains. The term "train employee" refers to

employees who are engaged in functions traditionally associated with train, engine, and yard service; for example, engineers, conductors, brakemen, switchmen, and firemen.

See 49 U.S.C. 21101(5); 49 CFR part 228, appendix A; and 74 FR 30665, June 26, 2009.

A railroad may also identify other employees and designate them in writing to be included in its general EEBA program. In making this assessment, the railroad should consider an employee's work over the period of a year. In doing so, the railroads must think about how they use their workforces, *i.e.*, review the work that their employees perform, determine which employees will occupy the cab of the locomotive of an in-service freight train and therefore experience the risk of the release of an inhalation-material from the consist, and then place those employees in the general EEBA program.

Given the nature of the railroad industry, FRA is aware that some of these employees may not always work in the cab. Due to longstanding labor practices in the railroad industry concerning seniority privileges and concerning the ability of railroad employees to bid for different work assignments, these railroad employees are likely to change jobs frequently and to work for extended periods of time on assignments that involve duties outside the cab. For example, an employee might start the year in a job that involves mostly outside-the-cab work, spend three months working primarily inside the cab, and then return to outside-the-cab work for the rest of the year. In this type of situation, these regulations govern the exposure of this employee throughout the year despite the fact that the employee only spent three months inside the cab. This employee is covered by this proposed part, because he spent time, no matter how little, in a locomotive cab where the use of an EEBA may be required. As a result, the railroad must ensure that the employee is properly instructed in how to inspect and use an EEBA and provide an EEBA for those time periods in which the employee is serving as a train employee, as a direct supervisor of a train employee, or in a capacity that the railroad has determined, in its discretion and designated in writing, should be provided an EEBA

while any of these individuals is working in the cab of the locomotive of an in-service freight train transporting a PIH material.

Note that placement of an employee in the railroad's general EEBA program means different things depending on the nature of the program that the railroad chooses to adopt. For example, if the railroad's program states that the railroad will equip its fleet of locomotives with sets of EEBA's sufficient to accommodate the train crew and possible deadheading train employees, the railroad would have to provide the EEBA to the employee in that way, in the locomotive cab. On the other hand, if the railroad's program states that the railroad will provide the EEBA to the employee as part of his or her personal equipment, the railroad would have to provide the EEBA in that manner. If the employee for whatever reason did not have the EEBA with him or her while in the locomotive cab, the railroad would be prohibited from using the locomotive by § 227.201(a)(2), which bars using a locomotive to transport a covered train if a covered employee occupying the cab of the locomotive does not access to a working EEBA. One constant is that all railroads subject to this proposed part are required to instruct employees placed in their general EEBA program in how to use EEBA's; the provision on instruction at § 227.209 requires that all employees identified in § 227.211 be provided instruction on EEBA's.

Finally, proposed § 227.211(c) requires railroads to maintain records concerning the persons and positions designated to be placed in its EEBA program and retain these records for the duration of the designation and for one year after the designation has ended.

Section 227.213 Employee's Responsibilities.

Since employees, who must be provided the EEBA's, are not always directly supervised by managers who can ensure the identified tasks are done at the appropriate time and frequency, this proposed section establishes certain responsibilities on the part

of employees. Some of these tasks may involve making records of such tasks as pre-trip inspections that must be done to ensure the EEBA's are ready for use. Additionally, FRA proposes prohibiting employees from willfully tampering with or vandalizing an EEBA in an attempt to disable or damage the device. *See* 49 CFR part 209, appendix A for definition and discussion of "willfully."

Section 227.215 Recordkeeping In General.

Proposed section 227.215 sets out the general recordkeeping provisions for subpart C. Proposed section 227.215(a) addresses the availability of required records. Section 227.215(a) provides that records required under this part, except for records of pre-trip inspections, be kept at system and division headquarters. It proposes requiring that a railroad make all records available for inspection and copying or photocopying by representatives of FRA upon request. The railroad must also make an employee's records available for inspection and copying or photocopying by that employee or such person's representative upon written authorization by such employee.

Proposed section 227.215(b) permits required records to be kept in electronic form. These requirements are almost identical to the electronic recordkeeping requirements found in FRA's existing Track Safety Standards, 49 CFR 213.241(e). Section 227.215(b) allows each railroad to design its own electronic system as long as the system meets the specified criteria in § 227.215(b)(1) through (5), which are intended to safeguard the integrity and authenticity of each record.

Section 227.217 Compliance Dates.

The specific dates by which certain groups of railroads are required to comply are set forth in this section. FRA recognizes that it will take time to procure EEBA's, instruct employees on their use, and outfit locomotives with the appropriate equipment to carry the devices. FRA staggers the compliance dates based on the size of the railroad, with larger railroads having to comply earlier. The AAR's January 13, 2010, letter referenced

earlier requests “that FRA allow at least two years from the effective date of the final rule for the railroad to be compliant with the regulation.” Under the final rule, FRA requires Class I railroads to be compliant within 12 months of the effective date of the final rule, with required compliance following for Class II railroads at 12 months and Class III and other railroads at 18 months.

Section 227.219 Incorporation by Reference.

Because subpart C proposes to incorporate by reference ISO 23269-1:2008, BS EN 13794:2002, and BS EN 1146:2005, FRA is adding this section to comply with the requirements of 5 U.S.C. 552(a) and 1 CFR part 51. ISO 23269-1:2008 provides specifications for emergency escape breathing devices intended to supply air or oxygen needed to escape from accommodation and machinery spaces with a hazardous atmosphere. BS EN 13794:2002 provides specifications including requirements, testing, and marking for self-contained closed-circuit breathing apparatus intended for an escape from a hazardous atmosphere. BS EN 1146:2005 provides specifications including requirements, testing, and marking for self-contained open-circuit compressed air breathing apparatus incorporating a hood and intended for an escape from a hazardous atmosphere. They are reasonably available to all interested parties online at <https://webstore.ansi.org/> and <http://shop.bsigroup.com>, respectively. Further, FRA will maintain copies of the standards available for review at the Federal Railroad Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590.

IX. Regulatory Impact and Notices

A. Executive Order 12866

This proposed rule is not a significant regulatory action within the meaning of Executive Order 12866. Details on the estimated costs of this SNPRM can be found in the RIA, which FRA has prepared and placed in the docket (FRA-2009-0044).

FRA is proposing a rule that would enable covered employees to wear protective breathing apparatus in the event of a catastrophic release of PIH materials. This rule would require that an EEBA be provided for each covered employee transporting PIH materials. These EEBA's would provide neck and face coverage with respiratory protection for these crewmembers. Railroads must also ensure that the equipment is maintained and in proper working condition. Finally, the proposed rule would require that railroads train crewmembers how to use the EEBA's.

The RIA presents estimates of the costs likely to occur over the first 10 years of the proposed rule. The analysis includes estimates of costs associated with the purchase of EEBA's and installation, employee training, and recordkeeping.

FRA has estimated costs for three options that are permissible under the rule.

These include:

- Option 1: Employee Assignment – EEBA's are assigned to all relevant employees and considered part of their equipment.
- Option 2: Locomotive Assignment – EEBA's are assigned to and kept in locomotives.
- Option 3: Equipment Pooling – EEBA's are pooled at rail yards and kept in storage lockers where employees would check-in and check-out the EEBA when PIH is being hauled.

For all three options, estimates were developed using a closed-circuit EEBA. For the "Employee Assignment" option, FRA estimates that the costs associated with issuing each T&E employee (\$60,000) with an EEBA as their own personal equipment. The "Locomotive Assignment" option would require installing EEBA devices in all locomotives in the covered railroad's fleet, regardless of whether a locomotive is part of a train that is transporting PIH material. There are approximately 24,000 locomotives owned by Class I railroads, and three apparatus would have to be installed in each locomotive, one apparatus each for the conductor, the engineer, and a supervisor. In the "Equipment Pooling" option, FRA considered only having EEBA's provided in trainsets

that were transporting PIH. EEBAAs would be brought on board after a determination is made on a case-by-case basis.

The analysis includes estimates of costs associated with the purchase of EEBAAs and installation, employee training, and recordkeeping.

FRA estimates the 10-year costs of the proposed rule to be between \$27.1 million and \$91.6 million, discounted at 7 percent. The following table shows the total costs of this proposed rule, over the 10-year analysis period.

Total 10-Year Costs (2021 Dollars)²³

Category	10-Year Cost (\$)	Present Value 7% (\$)	Present Value 3% (\$)	Annualized 7% (\$)	Annualized 3% (\$)
Option 1: Employee Assignment	\$92,006,767	\$78,979,882	\$85,771,368	\$11,244,958	\$10,055,021
Option 2: Locomotive Assignment	\$106,793,579	\$91,611,301	\$99,524,731	\$13,043,388	\$11,667,335
Option 3: Equipment Pooling	\$33,527,842	\$27,100,467	\$30,398,108	\$3,858,497	\$3,563,586

The proposed rule is expected to improve railroad safety by ensuring that all covered employees can safely vacate the exposed area if a PIH material release were to occur. The primary benefits include heightened safety for crewmembers and, as a result, earlier awareness/notification to the public of PIH releases. Implementation of the SNPRM should mitigate the injuries of covered employees from PIH material releasing after an accident/incident. During a 10-year period, this analysis finds \$43,110 (PV, 7 percent) in safety benefits that could accrue through injury prevention.

²³ Numbers in this table and subsequent tables may not sum due to rounding.

Category	10-Year Benefits (\$)	Present Value 7% (\$)	Present Value 3% (\$)	Annualized 7% (\$)	Annualized 3% (\$)
Total Benefits from Injury Prevention	\$63,720	\$43,110	\$53,520	\$6,138	\$6,274

Although the costs associated with implementation of the proposed rule would almost certainly exceed the benefits, under RSIA, FRA must require railroads to: (1) ensure that EEBA's affording suitable "head and neck coverage with respiratory protection" are provided "for all crewmembers" in a locomotive cab on a freight train "carrying hazardous materials that would pose an inhalation hazard in the event of release;" (2) provide a place for convenient storage of EEBA's in the locomotive that will allow "crewmembers to access such apparatus quickly;" (3) maintain EEBA's "in proper working condition;" and (4) provide crewmembers with appropriate instruction in the use of EEBA's. However, FRA would not require a particular method of deployment of EEBA's, but rather leave that to the railroads' discretion. In addition, railroads would be allowed to select the type of apparatus to use in their program (closed-circuit or open-circuit). This allows railroads to deploy EEBA's in the manner best suited to their operation.

B. Regulatory Flexibility Act and Executive Order 13272

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 et seq.) and EO 13272 (67 FR 53461, Aug. 16, 2002) require agency review of proposed and final rules to assess their impacts on small entities. An agency must prepare an IRFA unless it determines and certifies that a rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. FRA has not determined whether this proposed rule would have a significant economic impact on a substantial number of small entities. Therefore, FRA prepared this IRFA to facilitate public comment on the potential small business impacts of the requirements in this SNPRM.

FRA invites all interested parties to submit data and information regarding the potential economic impact on small entities that would result from adoption of the proposals in this SNPRM. FRA particularly encourages small entities that could potentially be impacted by the proposed rule to participate in the public comment process. FRA will consider all information and comments received in the public comment process when making a determination of the economic impact on small entities.

1. Reasons for Considering Agency Action

Agency action is required under Section 413 of the RSIA.

2. A Succinct Statement of the Objectives of, and the Legal Basis for, the Proposed Rule

This proposed rule would help reduce the risk of injury to crewmembers due to inhalation of PIH. Section 413 of the RSIA requires the Secretary of Transportation to promulgate regulations that require railroads to provide emergency escape breathing apparatus suitable to provide head and neck coverage with respiratory protection for all covered employees.

3. A Description of, and Where Feasible, an Estimate of the Number of Small Entities to Which the Proposed Rule Would Apply

The Regulatory Flexibility Act of 1980 requires a review of proposed and final rules to assess their impact on small entities, unless the Secretary certifies that the rule would not have a significant economic impact on a substantial number of small entities. “Small entity” is defined in 5 U.S.C. 601 as a small business concern that is independently owned and operated and is not dominant in its field of operation. The U.S. Small Business Administration (SBA) has authority to regulate issues related to small businesses, and stipulates in its size standards that a “small entity” in the railroad industry is a for profit “line-haul railroad” that has fewer than 1,500 employees, a “short line railroad” with fewer than 1,500 employees, a “commuter rail system” with annual

receipts of less than \$16.5 million dollars, or a contractor that performs support activities for railroads with annual receipts of less than \$16.5 million.²⁴

Federal agencies may adopt their own size standards for small entities in consultation with SBA and in conjunction with public comment. Under that authority, FRA published a statement of agency policy that formally establishes “small entities” or “small businesses” as railroads, contractors, and hazardous materials shippers that meet the revenue requirements of a Class III railroad as set forth in 49 CFR 1201.1-1, which is \$20 million or less in inflation-adjusted annual revenues,²⁵ and commuter railroads or small Governmental jurisdictions that serve populations of 50,000 or less. *See* 68 FR 24891 (May 9, 2003) (codified at Appendix C to 49 CFR part 209). FRA is using this definition for the proposed rule.

When shaping the proposed rule, FRA considered the impact that the proposed rule would have on small entities. The proposed rule would be applicable to all railroads with locomotives that transport PIH materials. FRA estimates there are 733 Class III railroads that operate on the general system. These railroads are of varying size, with some belonging to larger holding companies. FRA is aware of 110 Class III railroads that transport PIH materials. The remaining Class III railroads do not transport PIH, and thus would not be impacted by this proposed rule.

4. A Description of the Projected Reporting, Recordkeeping, and Other Compliance Requirements of the Rule, Including an Estimate of the Class of Small Entities That

²⁴ U.S. Small Business Administration, “Table of Small Business Size Standards Matched to North American Industry Classification System Codes, August 19, 2019. https://www.sba.gov/sites/default/files/2019-08/SBA%20Table%20of%20Size%20Standards_Effective%20Aug%202019,%202019.pdf.

²⁵ The Class III railroad revenue threshold is \$40.4 million or less, for 2021. (The Class II railroad threshold is between \$40.4 million and \$900 million.) *See* Surface Transportation Board (STB), available at <https://www.stb.gov/news-communications/latest-news/pr-21-16/>.

Would be Subject to the Requirements and the Type of Professional Skill Necessary for Preparation of the Report or Record

Railroads must keep records pertaining to pre-trip and periodic inspections of EEBA's. The information about each pre-trip and periodic inspection must be accurately recorded on a tag or label that is attached to the storage facility for the EEBA or kept with the EEBA or in inspection reports stored as paper or electronic files. Railroads would also be required to keep training records. Training records must be kept at system and division headquarters. A railroad must also make all records available for inspection and copying by representatives of FRA upon request. The section permits that the required records can be kept in electronic form.

The type of professional skills needed by an employee responsible for submitting a special approval request includes the ability to plan and organize work. Such an employee would also need good verbal and written communication skills and attention to detail.

5. Summary of Class III railroad costs

Class III Railroads would have all the same cost components as larger railroads, reduced for the estimated number of locomotives and employees on Class III railroads.

The following table shows the annualized cost for Class III railroads over the 10-year analysis period. The total estimated 10-year costs for Class III railroads would be \$1.0 million (PV, 7 percent) and the annualized cost for all Class III railroads would be \$149,326 (PV, 7 percent).

Total 10-Year and Annualized Costs, Class III Railroads

Category	Present Value (7%)	Annualized (7%)
EEBA and Installation	716,580	102,025
Training	232,950	33,167
Records	99,272	14,134
Total	1,048,802	149,326

The industry trade organization representing small railroads, ASLRRRA, reports the average freight revenue per Class III railroad is \$4.75 million.²⁶ The following table summarizes the average annual costs and revenue for Class III railroads.

Average Class III Railroads' Costs and Revenue

Total Cost for Class III Railroads, Annualized 7%	Number of Class III Railroads with PIH	Average Annual Cost per Class III Railroad (\$)	Average Class III Annual Revenue (\$)	Average Annual Cost as a Percent of Revenue
a	b	c = a ÷ b	d	e = c ÷ d
\$149,326	110	\$1,358	\$4,750,000	0.03%

The average annual cost for a Class III railroad impacted by this rule would be \$1,358. This represents a small percentage (0.03%) of the average annual revenue for a Class III railroad.

The estimates above show that the burden on Class III railroads would not be a significant economic burden. FRA requests comments on this estimate and will consider all comments when making a determination for the final rule.

6. Identification, to the Extent Practicable, of All Relevant Federal Rules That May Duplicate, Overlap, or Conflict with the Proposed Rule

FRA is not aware of any relevant Federal rule that duplicates, overlaps with, or conflicts with this SNPRM.

7. A Description of Significant Alternatives to the Rule

One alternative to this rule is the baseline approach. The baseline alternative (no action) would not fulfill requirements under RSIA. This proposed rule would allow railroads a significant amount of discretion when determining their plan for the implementation of EEBAs. For example, to reduce costs, FRA has allowed railroads to choose either open or closed-circuit units. Railroads may also choose any of the options

²⁶ American Short Line and Regional Railroad Association, *Short Line and Regional Railroad Facts and Figures*, p. 10 (2017 pamphlet).

described within this analysis or create any option that would still allow the railroad to be in compliance with the rule.

C. Federalism

Executive Order 13132, “Federalism” (64 FR 43255, Aug. 10, 1999), requires FRA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” are defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Under Executive Order 13132, the agency may not issue a regulation with federalism implications that imposes substantial direct compliance costs and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or the agency consults with State and local government officials early in the process of developing the regulation. Where a regulation has federalism implications and preempts State law, the agency seeks to consult with State and local officials in the process of developing the regulation.

This proposed rule has been analyzed in accordance with the principles and criteria contained in Executive Order 13132. FRA has determined that the proposed rule will not have substantial direct effects on the States, on the relationship between the national government and the States, nor on the distribution of power and responsibilities among the various levels of government. In addition, FRA has determined that this proposed rule will not impose substantial direct compliance costs on State and local governments. Therefore, the consultation and funding requirements of Executive Order 13132 do not apply. However, this proposed rule could have preemptive effect by operation of law under certain provisions of the Federal railroad safety statutes,

specifically a provision of the former FRSA, repealed and recodified at 49 U.S.C 20106, and the former LBIA, repealed and recodified at 49 U.S.C. 20701-20703. *See* Pub. L. 103-272 (July 5, 1994). A provision of the former FRSA provides that States may not adopt or continue in effect any law, regulation, or order related to railroad safety or security that covers the subject matter of a regulation prescribed or order issued by the Secretary of Transportation (with respect to railroad safety matters) or the Secretary of Homeland Security (with respect to railroad security matters), except when the State law, regulation, or order qualifies under the “local safety or security hazard” exception to section 20106. Moreover, the former LBIA has been interpreted by the Supreme Court as preempting the entire field of locomotive safety. *See Napier v. Atlantic Coast R.R.*, 272 U.S. 605, 611; 47 S.Ct. 207, 209 (1926).

In sum, FRA has analyzed this proposed rule in accordance with the principles and criteria contained in Executive Order 13132. As explained above, FRA has determined that this proposed rule has no federalism implications, other than the possible preemption of State laws under a provision of the former FRSA and under the former LBIA. Accordingly, FRA has determined that preparation of a federalism summary impact statement for this proposed rule is not required.

D. International Trade Impact Assessment

The Trade Agreement Act of 1979 prohibits Federal agencies from engaging in any standards or related activities that create unnecessary obstacles to the foreign commerce of the United States. Legitimate domestic objectives, such as safety, are not considered unnecessary obstacles. The statute also requires consideration of international standards and where appropriate, that they be the basis for U.S. standards. This proposed rulemaking is purely domestic in nature and is not expected to affect trade opportunities for U.S. firms doing business overseas or for foreign firms doing business in the United States.

E. Paperwork Reduction Act

The information collection requirements in this proposed rule are being submitted for approval to OMB²⁷ under the Paperwork Reduction Act of 1995.²⁸ The information collection requirements and the estimated time to fulfill each requirement are as follows:

CFR Section	Respondent universe	Total annual responses (A)	Average time per response (B)	Total annual burden (C) = A * B	Total cost equivalent (D) = C * wage ²⁹
227.201(a)—Criteria for requiring availability of EEBA's in the locomotive cab—Employees designated by the railroad in writing	128 railroads	600 designations	3 minutes	30.00 hours	\$2,337.30
227.203(c)—Criteria for selecting EEBA's—Railroads to document the adequacy of the EEBA and provide such documentation for inspection to FRA upon request	128 railroads	43 written justifications	2 hours	86.00 hours	\$6,700.26
227.205(c)—Storage facilities for EEBA's—Railroads to keep a copy of the instructions at their system headquarters for FRA inspection	128 railroads	43 instruction copies	1 minute	.72 hours	\$56.10
227.207(a)—Railroad's program for inspection, maintenance, and replacement of EEBA's; requirements for procedures—Written program for inspection, maintenance, and	The paperwork burden for this requirement is covered under § 227.211.				

²⁷ FRA will be using the OMB control number (OMB No. 2130-0620) that was issued when the previous NPRM was issued in 2010 for this information collection request.

²⁸ 44 U.S.C. 3501 *et seq.*

²⁹ The dollar equivalent cost is derived from the Surface Transportation Board's Full Year Wage A&B data series using the appropriate employee group hourly wage rate that includes a 75-percent overhead charge.

replacement of EEBA's					
—(b) Inspection procedures and records—Tag or label that is attached to the storage facility for the EEBA or kept with the EEBA or in inspection reports stored as paper or electronic files	128 railroads	10,000 inspection records	30 seconds	83.33 hours	\$6,492.24
—(d) Records of returns, maintenance, repair, and replacement—Recordkeeping and retention	128 railroads	180 records	30 seconds	1.50 hours	\$116.87
227.209(a)—Railroad's program of instruction on EEBA's—Written program of instruction on EEBA's	The paperwork burden for this requirement is covered under § 227.211.				
—(d) Records of instruction—Railroad to maintain a record of employees provided instruction in compliance with this section and retain these records for three years ³⁰	128 railroads	20,000 initial training records	3 minutes	1,000.00 hours	\$62,670.00
—(d) Records of intervals for periodic instruction	128 railroads	2,000 refresher or new hire training records	3 minutes	100.00 hours	\$6,267.00
227.211(a), (b) and (d)—Requirement to implement a general EEBA program; criteria for placing employees in the general EEBA program—	128 railroads	45.67 written programs (2.33 Class I railroads' programs + 42.33 Class II and III	80 hours + 2 hours + 80 hours	351.33 hours	\$30,167.83

³⁰ The associated burden related to employees' training are calculated under the economic cost of the regulation.

Comprehensive written program		railroads' programs + 1 generic program developed by ASLRRRA)			
—(c) Records of positions or individuals or both in the railroad's general EEBA—Designated employees by the railroad to be placed in its general EEBA program pursuant to § 227.211(b)(4)	The paperwork burden for this requirement is covered under §§ 227.201 and 227.209.				
227.213—Employee's responsibilities— Notification to railroad of EEBA failures and of use incidents in a timely manner	128 railroads	1 notification	1 minute	.02 hours	\$1.25
227.215(b)— Recordkeeping in general—Electronic records to meet FRA requirements	18 railroads	6 modified systems	1 hour	6.00 hours	\$467.46
—(b)(5) Paper copies of electronic records and amendments to those records are made available for inspection and copying or photocopying by representatives of FRA	128 railroads	43 copies	15 minutes	10.75 hours	\$837.53
Total ³¹	128 railroads	32,962 responses	N/A	1,670 hours	\$116,114

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information. Pursuant to 44 U.S.C. 3506(c)(2)(B), FRA solicits comments concerning: whether these

³¹ Totals may not add up due to rounding.

information collection requirements are necessary for the proper performance of the functions of FRA, including whether the information has practical utility; the accuracy of FRA's estimates of the burden of the information collection requirements; the quality, utility, and clarity of the information to be collected; and whether the burden of collection of information on those who are to respond, including through the use of automated collection techniques or other forms of information technology, may be minimized. Organizations and individuals desiring to submit comments on the collection of information requirements or to request a copy of the paperwork package submitted to OMB should contact Ms. Arlette Mussington, Information Collection Clearance Officer, at email: arlette.mussington@dot.gov or telephone: (571) 609-1285 or Ms. Joanne Swafford, Information Collection Clearance Officer, at email: joanne.swafford@dot.gov or telephone: (757) 897-9908.

OMB is required to make a decision concerning the collection of information requirements contained in this proposed rule between 30 and 60 days after publication of this document in the Federal Register. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal. FRA is not authorized to impose a penalty on persons for violating information collection requirements that do not display a current OMB control number, if required.

F. Compliance with the Unfunded Mandates Reform Act of 1995

Pursuant to Section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4, 2 U.S.C. 1531), each Federal agency "shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments, and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law)." Section 202 of the Act (2 U.S.C. 1532)

further requires that “before promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100,000,000 or more (adjusted annually for inflation) in any one year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency shall prepare a written statement” detailing the effect on State, local, and tribal governments and the private sector. This proposed rule will not result in such an expenditure, and thus preparation of such a statement is not required.

G. Environmental Assessment

FRA has evaluated this proposed rule in accordance with the National Environmental Policy Act³² (NEPA), the Council of Environmental Quality’s NEPA implementing regulations,³³ and FRA’s NEPA implementing regulations.³⁴ FRA has determined that this proposed rule is categorically excluded from environmental review and therefore does not require the preparation of an environmental assessment (EA) or environmental impact statement (EIS). Categorical exclusions (CEs) are actions identified in an agency’s NEPA implementing procedures that do not normally have a significant impact on the environment and therefore do not require either an EA or EIS.³⁵ Specifically, FRA has determined that this proposed rule is categorically excluded from detailed environmental review.³⁶

This rulemaking would not directly or indirectly impact any environmental resources and would not result in significantly increased emissions of air or water

³² 42 U.S.C. 4321 *et seq.*

³³ 40 CFR parts 1500–1508.

³⁴ 23 CFR part 771.

³⁵ 40 CFR 1508.4

³⁶ See 23 CFR 771.116(c)(15) (categorically excluding “[p]romulgation of rules, the issuance of policy statements, the waiver or modification of existing regulatory requirements, or discretionary approvals that do not result in significantly increased emissions of air or water pollutants or noise”).

pollutants or noise. In analyzing the applicability of a CE, FRA must also consider whether unusual circumstances are present that would warrant a more detailed environmental review.³⁷ FRA has concluded that no such unusual circumstances exist with respect to this proposed rule and it meets the requirements for categorical exclusion.³⁸

Pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, FRA has determined this undertaking has no potential to affect historic properties.³⁹ FRA has also determined that this rulemaking does not approve a project resulting in a use of a resource protected by Section 4(f).⁴⁰ Further, FRA reviewed this proposed rulemaking and found it consistent with Executive Order 14008, Tackling the Climate Crisis at Home and Abroad.⁴¹

H. Energy Impact

Executive Order 13211 requires Federal agencies to prepare a Statement of Energy Effects for any “significant energy action.” (66 FR 28355, May 22, 2001). FRA evaluated this proposed rule in accordance with Executive Order 13211 and determined that this proposed rule is not a “significant energy action” within the meaning of Executive Order 13211.

I. Privacy Act

In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to <http://www.regulations.gov>, as described in the system of records notice, which can be reviewed at <http://www.dot.gov/privacy>. To facilitate comment tracking and response, FRA

³⁷ 23 CFR 771.116(b).

³⁸ 23 CFR 771.116(c)(15).

³⁹ See 54 U.S.C. 306108.

⁴⁰ See Department of Transportation Act of 1966, as amended (Pub. L. 89-670, 80 Stat. 931); 49 U.S.C. 303.

⁴¹ 86 FR 7619 (Feb. 1, 2021).

encourages commenters to provide their name, or the name of their organization; however, submission of names is completely optional. Whether or not commenters identify themselves, all timely comments will be fully considered. If you wish to provide comments containing proprietary or confidential information, please contact the agency for alternate submission instructions.

J. Analysis Under 1 CFR Part 51

As required by 1 CFR 51.5, FRA has summarized the standards it is incorporating by reference in the section-by-section analysis in this preamble. These standards summarized herein, are reasonably available to all interested parties for inspection.

Copies can be obtained from the International Organization for Standardization, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, telephone +41-22-749-08-88 or <https://www.iso.org/standard/50245.html> and from the British Standards Institution, 12110 Sunset Hills Road, Suite 200, Reston, VA 20190-5902, telephone: 800-862-4977 or <http://shop.bsigroup.com>. They are also available for inspection at the Federal Railroad Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590; phone: (202) 493-6052; email: FRALegal@dot.gov.

K. Executive Order 12898 (Environmental Justice)

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations”⁴² and DOT Order 5610.2C⁴³ require DOT agencies to achieve environmental justice as part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects, including interrelated social and economic effects, of their programs, policies, and activities on minority populations and low-income populations. The DOT Order instructs DOT agencies to address compliance with Executive Order

⁴² 59 FR 7629 (Feb. 16, 1994).

⁴³ Available at: <https://www.transportation.gov/sites/dot.gov/files/Final-for-OST-C-210312-003-signed.pdf>.

12898 and requirements within the DOT Order in rulemaking activities, as appropriate, and also requires consideration of the benefits of transportation programs, policies, and other activities where minority populations and low-income populations benefit, at a minimum, to the same level as the general population as a whole when determining impacts on minority and low-income populations. FRA has evaluated this proposed rule under Executive Order 12898 and the DOT Order and has determined it would not cause disproportionately high and adverse human health and environmental effects on minority populations or low-income populations.

L. Executive Order 13175 (Tribal Consultation)

FRA has evaluated this proposed rule in accordance with the principles and criteria contained in Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, dated November 6, 2000. The proposed rule would not have a substantial direct effect on one or more Indian tribes, would not impose substantial direct compliance costs on Indian tribal governments, and would not preempt tribal laws. Therefore, the funding and consultation requirements of Executive Order 13175 do not apply, and a tribal summary impact statement is not required.

List of Subjects in 49 CFR Part 227

Hazardous materials transportation, Incorporation by reference, Locomotive noise control, Occupational safety and health, Penalties, Railroad employees, Railroad safety, Reporting and recordkeeping requirements.

The Proposed Rule

For the reasons discussed in the preamble, FRA proposes to amend part 227 of chapter II, subtitle B of title 49 of the Code of Federal Regulations as follows:

PART 227—OCCUPATIONAL SAFETY AND HEALTH IN THE LOCOMOTIVE CAB

1. The authority citation for part 227 is revised to read as follows:

Authority: 49 U.S.C. 20103, 20103 note, 20166, 20701-20703, 21301, 21302, 21304; 28 U.S.C. 2461 note; and 49 CFR 1.89.

2. Revise the heading for part 227 to read as set forth above.

3. Revise § 227.1 to read as follows:

§ 227.1 Purpose and scope.

(a) *General.* The purpose of this part is to protect the occupational safety and health of certain employees who are exposed to occupational dangers while in the cab of the locomotive. This part prescribes minimum Federal safety and health standards for certain locomotive cab occupants. This part does not restrict a railroad or railroad contractor from adopting and enforcing additional or more stringent requirements.

(b) *Subpart B.* The purpose of subpart B is to protect the occupational safety and health of employees whose predominant noise exposure occurs in the locomotive cab. This subpart prescribes minimum Federal safety and health noise standards for locomotive cab occupants.

(c) *Subpart C.* The purpose of subpart C is to protect the occupational safety and health of train employees and certain other employees in the cab of the locomotive of a freight train that is transporting a PIH material that, if released due to a railroad accident/incident, would pose an inhalation hazard to the occupants. In particular, subpart C is intended to protect these employees from the risk of exposure to the material while they are located in, or during escape from, the locomotive cab.

4. Revise paragraph (a), the introductory text of paragraph (b), and paragraph (b)(5), and add paragraphs (c) and (d) to read as follows:

§ 227.3 Application.

(a) Except as provided in paragraph (b) of this section, Subpart B of this part

applies to all railroads and contractors to railroads.

(b) Subpart B of this part does not apply to -

* * * * *

(5) Foreign railroad operations that meet the following conditions: Employees of the foreign railroad have a primary reporting point outside of the U.S. but are operating trains or conducting switching operations in the U.S.; and the government of that foreign railroad has implemented requirements for hearing conservation for railroad employees; the foreign railroad undertakes to comply with those requirements while operating within the U.S.; and FRA's Associate Administrator for Railroad Safety/Chief Safety Officer determines that the foreign requirements are consistent with the purpose and scope of subpart B of this part. A "foreign railroad" refers to a railroad that is incorporated in a place outside the U.S. and is operated out of a foreign country but operates for some distance in the U.S.

(c) Except as provided in paragraph (d) of this section, subpart C of this part applies to any railroad that operates a freight train that transports a PIH material, including a residue of such a PIH material, on standard gage track that is part of the general railroad system of transportation.

(d) Subpart C of this part does not apply to a railroad that operates only on track inside an installation that is not part of the general railroad system of transportation.

5. In § 227.5, add, in alphabetical order, definitions for "accident/incident", "Associate Administrator for Railroad Safety/Chief Safety Officer", "atmosphere immediately dangerous to life or health (IDLH)", "atmosphere-supplying device", "deadheading", "division headquarters", "emergency escape breathing apparatus or EEBA", "foreign railroad", "freight car", "freight train", "hazardous material", "hazardous employee", "In service or in-service", "intermodal container", "ISO", "NIOSH", "PIH material", "residue", "state", "switching service", "system

headquarters”, “train employee”, and “United States” to read as follows:

§ 227.5 Definitions.

As used in this part--

Accident/incident has the meaning that is assigned to that term by § 225.5 of this chapter.

* * * * *

Associate Administrator for Railroad Safety/Chief Safety Officer means the Associate Administrator for Railroad Safety/Chief Safety Officer, Federal Railroad Administration, 1200 New Jersey Avenue, SE., Washington, DC 20590.

Atmosphere immediately dangerous to life or health (IDLH) means an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Atmosphere-supplying device means a respirator that supplies the respirator user with breathing air from a source that is independent of the ambient atmosphere. Such devices include supplied-air respirators and self-contained breathing apparatus units.

* * * * *

Deadheading means the physical relocation of a train employee from one point to another as a result of a railroad-issued oral or written directive.

Division headquarters means the location designated by the railroad where a high-level operating manager (e.g., a superintendent, division manager, or equivalent), who has jurisdiction over a portion of the railroad, has an office.

Emergency escape breathing apparatus or *EEBA* means an atmosphere-supplying respirator device that is designed for use only during escape from a hazardous atmosphere.

* * * * *

Freight car means a vehicle designed to transport freight, or railroad personnel,

by rail and includes, but is not limited to, a—

- (1) Box car;
- (2) Refrigerator car;
- (3) Ventilator car;
- (4) Stock car;
- (5) Gondola car;
- (6) Hopper car;
- (7) Flat car;
- (8) Special car;
- (9) Caboose;
- (10) Tank car; and
- (11) Yard car.

Freight train means one or more locomotives coupled with one or more freight cars, except during switching service.

Hazardous material has the meaning assigned to that term by § 171.8 of this title.

Hazmat employee has the meaning assigned to that term by § 171.8 of this title.

* * * * *

In service or *in-service* when used in connection with a freight train, means each freight train subject to this part unless the train—

- (1) Is in a repair shop or on a repair track;
- (2) Is on a storage track and its cars are empty; or
- (3) Has been delivered in interchange but has not been accepted by the receiving carrier.

Intermodal container means a freight container designed and constructed to permit it to be used interchangeably in two or more modes of transportation.

ISO means the International Organization for Standardization, a network of national standards institutes in 162 countries, including the United States through the

American National Standards Institute, that develops international standards to assist in ensuring the safe performance of a wide range of devices, including EEBAs.

* * * * *

NIOSH means the National Institute for Occupational Safety and Health, a Federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness, which is part of the Centers for Disease Control and Prevention in the U.S. Department of Health and Human Services and which certifies industrial-type respirators in accordance with the NIOSH respiratory regulations (42 CFR part 84 (June 8, 1995)).

* * * * *

PIH material means any of the hazardous materials that are a gas, liquid, or other material defined as a “material poisonous by inhalation” by § 171.8 of this title.

* * * * *

Residue has the meaning assigned to the term by § 171.8 of this title.

* * * * *

State means a State of the United States of America or the District of Columbia.

* * * * *

Switching service means the classification of freight cars according to commodity or destination; assembling of cars for train movements; changing the position of cars for purposes of loading, unloading, or weighing; placing of locomotives and cars for repair or storage; or moving of rail equipment in connection with work service that does not constitute a freight train movement.

System headquarters means the location designated by the railroad as the general office for the railroad system.

* * * * *

Train employee means an individual who is engaged in or connected with the

movement of a train, including a hostler, as defined in 49 U.S.C. 21101.

* * * * *

United States means all of the States and the District of Columbia.

6. Remove and reserve § 227.7.

§ 227.7 [Removed and Reserved]

7. Amend § 227.15 by revising paragraph (b) to read as follows:

§ 227.15 Information collection.

* * * * *

(b) The information collection requirements are found in the following sections:

§§ 227.13, 227.103, 227.107, 227.109, 227.111, 227.117, 227.119, 227.121, 227.201, 227.203, 227.205, 227.207, 227.209, 227.211, 227.213, and 227.215.

8. Amend § 227.103 by revising paragraphs (a)(1) and (a)(2) to read as follows:

§ 227.103 Noise monitoring program.

(a) * * *

(1) Class I, passenger, and commuter railroads no later than February 26, 2008.

(2) Railroads with 400,000 or more annual employee hours that are not Class I, passenger, or commuter railroads no later than August 26, 2008.

* * * * *

9. Amend § 227.109 by revising paragraph (e)(2)(i) to read as follows:

§ 227.109 Audiometric testing program.

* * * * *

(e) * * *

(2) * * *

(i) For all employees without a baseline audiogram as of February 26, 2007, Class I, passenger, and commuter railroads, and railroads with 400,000 or more annual employee hours shall establish a valid baseline audiogram by February 26, 2009; and

railroads with less than 400,000 annual employee hours shall establish a valid baseline audiogram by February 26, 2010.

* * * * *

10. Amend § 227.119 by revising paragraph (b)(2) to read as follows:

§ 227.119 Training program.

* * * * *

(b) * * *

(2) For employees hired on or before February 26, 2007, by Class I, passenger, and commuter railroads, and railroads with 400,000 or more annual employee hours, by no later than February 26, 2009;

* * * * *

11. Add subpart C to part 227 to read as follows:

Subpart C—Emergency Escape Breathing Apparatus Standards

Sec.

227.201 Criteria for requiring availability of EEBA's in the locomotive cab.

227.203 Criteria for selecting EEBA's.

227.205 Storage facilities for EEBA's.

227.207 Railroad's program for inspection, maintenance, and replacement of EEBA's; requirements for procedures.

227.209 Railroad's program of instruction on EEBA's.

227.211 Requirement to implement a general EEBA program; criteria for placing employees in the general EEBA program.

227.213 Employee's responsibilities.

227.215 Recordkeeping in general.

227.217 Compliance dates.

227.219 Incorporation by reference.

Subpart C—Emergency Escape Breathing Apparatus Standards

§ 227.201 Criteria for requiring availability of EEBA's in the locomotive cab.

(a) *In general.* (1)(i) Except as specified in paragraph (b) of this section, a railroad is required to provide an EEBA to each of the following of its employees while the employee is located in the cab of a locomotive of an in-service freight train transporting a PIH material, including a residue of a PIH material:

- (1) Any train employee;
- (2) Any direct supervisor of the train employee;
- (3) Any employee who is deadheading; and
- (4) Any other employee designated by the railroad in writing and at the discretion of the railroad.

(ii) Each EEBA provided to an employee identified in paragraph (a)(1)(i) of this section must meet the EEBA-selection criteria of § 227.203 and must have been inspected and be in working order pursuant to the requirements of § 227.207 at the time that the EEBA is provided to the employee.

(2) Except as specified in paragraph (b) of this section, a railroad shall not use a locomotive to transport a PIH material, including a residue of a PIH material, in an in-service freight train unless each of the employees identified in paragraph (a)(1)(i) of this section while occupying a locomotive cab of the train has access to an EEBA that satisfies the EEBA selection criteria in § 227.203 and that has been inspected and is in working order pursuant to the requirements in § 227.207.

(b) *Exceptions.* (1) A railroad is not required to provide an EEBA, or make accessible an EEBA, to an employee while in the locomotive cab of an in-service freight train transporting a PIH material if all of the PIH materials in the train, including a residue of a PIH material, are being transported in one or more intermodal containers.

(2) This subpart does not apply to any of the following:

(i) Employees who are moving a locomotive or group of locomotives coupled to a car or group of cars transporting a PIH material, including a residue of a PIH material, only within the confines of a locomotive repair or servicing area.

(ii) Employees who are moving a locomotive or group of locomotives coupled to a car or group of cars transporting a PIH material, including a residue of a PIH material for distances of less than 100 feet for inspection or maintenance purposes.

(c) Notwithstanding any exceptions identified in this subpart, any employee who willfully tampers with or vandalizes an EEBA shall be subject to this subpart for purposes of enforcement relating to § 227.213 (Employee's responsibilities).

§ 227.203 Criteria for selecting EEBA's.

In selecting the appropriate EEBA to provide to an employee, the railroad shall do the following:

(a) Select an atmosphere-supplying EEBA that protects against all PIH materials (including their residue) that are being transported by the freight train while in service.

(b) Ensure that the type of respirator selected meets the requirements of paragraph (c)(1) of this section regarding minimum breathing capacity and is—

(1) Certified for an escape only purpose by NIOSH pursuant to 42 CFR part 84, or

(2) Declared by the manufacturer, based on verifiable testing by the manufacturer or an independent third party, to meet the criteria established by one of the following:

(i) ISO 23269-1:2008(E) (incorporated by reference, see § 227.219);

(ii) BS EN 13794:2002 E (incorporated by reference, see § 227.219); or

(iii) BS EN 1146:2005: E (incorporated by reference, see § 227.219).

(c) Document, and provide such documentation for inspection by FRA upon request, the rationale for the final selection of an EEBA by addressing each of the following concerns:

(1) *Breathing time.* Each EEBA must be fully charged and contain a minimum breathing capacity of 15 minutes at the time of the pre-trip inspection required under § 227.207(a)(1).

(2) *Head and neck protection.* The EEBA selected must provide a means of protecting the individual's head and neck from the irritating effects of PIH materials to facilitate escape.

(3) *Accommodation for eyeglasses and a range of facial features.* The EEBA selected must provide a means of protecting each employee who is required to be provided with the EEBA, including those who wear glasses, and allow for the reasonable accommodation of each such employee's facial features, including facial hair.

§ 227.205 Storage facilities for EEBA's.

(a) A railroad may not use a locomotive if it is part of an in-service freight train transporting a PIH material, including a residue of a PIH material, and the locomotive cab is occupied by an employee identified in § 227.201(a)(1)(i)(A)-(D) (subject employee), unless the locomotive cab has appropriate storage facilities to hold the number of EEBA's required to be provided.

(b) The storage facility for each required EEBA must—

(1) Prevent deformation of the face piece and exhalation valve, where applicable;

(2) Protect the EEBA from incidental damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals;

(3) Provide each subject employee located in the locomotive cab with ready access to the EEBA during an emergency; and

(4) Provide a means for each subject employee to locate the EEBA under adverse conditions such as darkness or disorientation.

(c) A railroad must comply with the applicable manufacturer's instructions for storage of each required EEBA and must keep a copy of the instructions at its system headquarters for FRA inspection.

§ 227.207 Railroad's program for inspection, maintenance, and replacement of EEBA's; requirements for procedures.

(a) *General.* Each railroad shall establish and comply with a written program for inspection, maintenance, and replacement of EEBA's that are required under this subpart. The program for inspection, maintenance, and replacement of EEBA's shall be

maintained at the railroad's system headquarters and shall be amended, as necessary, to reflect any significant changes. This program shall include the following procedures:

(1) Procedures for performing and recording a pre-trip inspection of each EEBA that is required to be provided on a locomotive being used to transport a PIH material and procedures for cleaning, replacing, or repairing each required EEBA, if necessary, prior to its being provided under § 227.201(a);

(2) Procedures for performing and recording periodic inspections and maintenance of each required EEBA in a manner and on a schedule in accordance with the manufacturer's recommendations; and

(3) Procedures for turning in and obtaining a replacement for a defective, failed, or used EEBA and for recording those transactions.

(b) *Inspection procedures and records.* (1) A railroad's procedures for pre-trip and periodic inspections of EEBA's shall require that the following information about each pre-trip and periodic inspection be accurately recorded on a tag or label that is attached to the storage facility for the EEBA or kept with the EEBA or in inspection reports stored as paper or electronic files:

(i) The name of the railroad performing the inspection;

(ii) The date that the inspection was performed;

(iii) The name and signature of the individual who made the inspection;

(iv) The findings of the inspection;

(v) The required remedial action; and

(vi) A serial number or other means of identifying the inspected EEBA.

(2) A railroad shall maintain an accurate record of each pre-trip and periodic inspection required by this section. Pre-trip inspection records shall be retained for a period of 92 days. Periodic inspection records shall be retained for a period of one year.

(c) *Procedures applicable if EEBA fails an inspection or is used.* An EEBA that fails an inspection required by this section, is otherwise found to be defective, or is used, shall be removed from service and be discarded, repaired, adjusted, or cleaned in accordance with the following procedures:

(1) Repair, adjustment, and cleaning of EEBA's shall be done only by persons who are appropriately trained to perform such work and who shall use only the EEBA manufacturer's approved parts designed to maintain the EEBA in compliance with one of the following standards:

- (i) NIOSH at 42 CFR part 84;
- (ii) ISO 23269-1:2008(E) (incorporated by reference, see § 227.219);
- (iii) BS EN 1146:2005: E (incorporated by reference, see § 227.219); or
- (iv) BS EN 13794:2002 E (incorporated by reference, see § 227.219).

(2) Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed.

(3) Where applicable, reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

(d) *Records of returns, maintenance, repair, and replacement.* A railroad shall—

(1) Maintain an accurate record of return, maintenance, repair, or replacement for each EEBA required by this subpart; and

(2) Retain each of these records for three years.

§ 227.209 Railroad's program of instruction on EEBA's.

(a) *General.* (1) A railroad shall adopt and comply with its written program of instruction on EEBA's for all of its employees in its general EEBA program under § 227.211 (subject employees). The program of instruction shall be maintained at the

railroad's system headquarters and shall be amended, as necessary, to reflect any significant changes.

(2) This program may be integrated with the railroad's program of instruction on operating rules under § 217.11 of this chapter or its program of instruction for hazmat employees under § 172.704 of this title. If the program is not integrated with either of these programs, it must be written in a separate document that is available for inspection by FRA.

(b) *Subject matter.* The railroad's program of instruction shall require that the subject employees demonstrate knowledge of at least the following:

(1) Why the EEBA is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the EEBA.

(2) The capabilities and limitations of the EEBA, particularly the limited time for use.

(3) How to use the EEBA effectively in emergency situations, including situations in which the EEBA malfunctions.

(4) How to inspect, put on, remove, and use the EEBA, and how to check the seals of the EEBA.

(5) Procedures for maintenance and storage of the EEBA that must be followed.

(6) The EEBA-selection criteria in § 227.203.

(7) The requirements of this subpart related to the responsibilities of employees and the rights of employees to have access to records.

(8) The hazardous materials classified as PIH materials.

(c) *Dates of initial instruction and intervals for periodic instruction.* (1) The instruction for current subject employees shall be provided on an initial basis no later than 30 days prior to the date of compliance identified in § 227.217. Initial instruction of new subject employees shall occur either 30 days prior to the date of compliance

identified in § 227.217 or before assignment to jobs where the deployment of EEBA's on a locomotive is required, whichever is later.

(2) Initial instruction shall be supplemented with periodic instruction at least once every three years.

(d) *Records of instruction.* A railroad shall maintain a record of employees provided instruction in compliance with this section and retain these records for three years.

§ 227.211 Requirement to implement a general EEBA program; criteria for placing employees in the general EEBA program.

(a) *In general.* A railroad shall adopt and comply with a comprehensive, written, general program to implement this subpart that shall be maintained at the railroad's system headquarters. Each railroad shall amend its general EEBA program, as necessary, to reflect any significant changes.

(b) *Elements of the general EEBA program and criteria for placing employees in program.* A railroad's general EEBA program shall—

(1) Identify the individual that implements and manages the railroad's general EEBA program by title. The individual must have suitable training and sufficient knowledge, experience, skill, and authority to enable him or her to manage properly a program for provision of EEBA's. If the individual is not directly employed by the railroad, the written program must identify the business relationship of the railroad to the individual fulfilling this role.

(2) Describe the administrative and technical process for selection of EEBA's appropriate to the hazards that may be reasonably expected.

(3) Describe the process used to procure and provide EEBA's in a manner to ensure the continuous and ready availability of an EEBA to each of the railroad's employees identified in § 227.201(a)(1)(i)(A)-(D) (while actually occupying the

locomotive cab of a freight train in service transporting a PIH material). This description shall include—

(i) A description of the method used for provision of EEBA's, including whether the EEBA's are individually assigned to employees, installed on locomotives as required equipment, or provided by other means. If EEBA's are installed on locomotives as required equipment, the means of securement shall be designated.

(ii) The decision criteria used by the railroad to identify trains in which provision of EEBA's is not required.

(iii) A description of what procedures will govern the railroad at interchange to ensure that the locomotive cab in each in-service freight train transporting a PIH material has an EEBA accessible to each of the employees identified in § 227.201(a)(1)(i)(A)-(D) while in the cab of the locomotive, including what procedures are in place to ensure that the EEBA's provided satisfy the EEBA-selection criteria in § 227.203, satisfy the EEBA-storage criteria in § 227.205, and have been inspected and are in working order pursuant to the requirements in § 227.207.

(4) Ensure that each of the following employees, except those excluded by § 227.201(b), whose duties require regular work in the locomotive cabs of in-service freight trains transporting a PIH material, including a residue of a PIH material, has the required EEBA available when they occupy the cab of such a train and know how to use the EEBA:

(i) Employees who perform service subject to 49 U.S.C. 21103 (train employees) on such trains;

(ii) Direct supervisors of train employees on such trains;

(iii) Deadheading employees on such trains; and

(iv) Any other employees designated by the railroad in writing and at the discretion of the railroad.

(c) *Records of positions or individuals or both in the railroad's general EEBA program.* A railroad shall maintain a record of all positions or individuals, or both, who are designated by the railroad to be placed in its general EEBA program pursuant to § 227.211(b)(4). The railroad shall retain these records for the duration of the designation and for one year thereafter.

(d) *Consolidated programs.* A group of two or more commonly controlled railroads subject to this subpart may request in writing that the Associate Administrator for Railroad Safety/Chief Safety Officer (Associate Administrator) treat them as a single railroad for purposes of adopting and complying with the general EEBA program required by this section. The request must list the parent corporation that controls the group of railroads and demonstrate that the railroads operate in the United States as a single, integrated rail system. The Associate Administrator will notify the railroads of his or her decision in writing.

§ 227.213 Employee's responsibilities.

(a) An employee to whom the railroad provides an EEBA shall—

(1) Participate in training under § 227.209;

(2) Follow railroad procedures to ensure that the railroad's EEBA's—

(i) Are maintained in a secure and accessible manner;

(ii) Are inspected as required by this subpart and the railroad's program of

inspection; and

(iii) If found to be unserviceable upon inspection, are turned in to the appropriate railroad facility for repair, periodic maintenance, or replacement; and

(3) Notify the railroad of EEBA failures and of use incidents in a timely manner.

(b) No employee shall willfully tamper with or vandalize an EEBA that is provided pursuant to § 227.201(a) in an attempt to disable or damage the EEBA.

§ 227.215 Recordkeeping in general.

(a) *Availability of records.* (1) A railroad shall make all records required by this subpart available for inspection and copying or photocopying to representatives of FRA, upon request.

(2) Except for records of pre-trip inspections of EEBA's under § 227.207, records required to be retained under this subpart must be kept at the system headquarters and at each division headquarters where the tests and inspections are conducted.

(b) *Electronic records.* All records required by this subpart may be kept in electronic form by the railroad. A railroad may maintain and transfer records through electronic transmission, storage, and retrieval provided that all of the following conditions are met:

(1) The electronic system is designed so that the integrity of each record is maintained through appropriate levels of security such as recognition of an electronic signature, or other means, which uniquely identify the initiating person as the author of that record. No two persons have the same electronic identity.

(2) The electronic system ensures that each record cannot be modified in any way, or replaced, once the record is transmitted and stored.

(3) Any amendment to a record is electronically stored apart from the record that it amends. Each amendment to a record is uniquely identified as to the individual making the amendment.

(4) The electronic system provides for the maintenance of records as originally submitted without corruption or loss of data.

(5) Paper copies of electronic records and amendments to those records that may be necessary to document compliance with this subpart are made available for inspection and copying or photocopying by representatives of FRA.

§ 227.217 Compliance dates.

(a) Class I railroads subject to this subpart are required to comply with this

subpart beginning no later than 12 months from the effective date of the final rule.

(b) Class II railroads subject to this subpart are required to comply with this subpart beginning no later than 12 months from the effective date of the final rule.

(c) Class III railroads subject to this subpart and any other railroads subject to this subpart are required to comply with this subpart beginning no later than 18 months from the effective date of the final rule.

§ 227.219 Incorporation by reference.

(a) Certain material is incorporated by reference into this subpart with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. This incorporation by reference (IBR) material is available for inspection at the FRA and the National Archives and Records Administration (NARA). Contact FRA at: Federal Railroad Administration, 1200 New Jersey Avenue, SE, Washington, DC 20590; phone: (202) 493-6052; email: FRALegal@dot.gov. For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations.html or email fr.inspection@nara.gov. The material may be obtained from the following sources:

(b) International Organization for Standardization, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, telephone +41-22-749-08-88 or <https://www.iso.org/standard/50245.html>

(1) ISO 23269-1:2008(E), Ships and marine technology — Breathing apparatus for ships — Part 1: Emergency escape breathing devices (EEBD) for shipboard use, First Edition, February 1, 2008;, into §§ 227.203(b) and 227.207(c).

(2) [Reserved]

(c) The British Standards Institution, 12110 Sunset Hills Road, Suite 200, Reston, VA 20190-5902, telephone: 800-862-4977 or <http://shop.bsigroup.com>

(1) BS EN 13794:2002 E, Respiratory Protective Devices—Self-Contained, Closed-Circuit Breathing Apparatus for Escape—Requirements, Testing, Marking, November 2002 §§ 227.203(b) and 227.207(c).

(2) BS EN 1146:2005: E, Respiratory Protective Devices—Self-Contained, Open-Circuit Compressed Air Breathing Apparatus Incorporating a Hood for Escape—Requirements, Testing, Marking; September 2005; into §§ 227.203(b) and 227.207(c).

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Amitabha Bose,

Administrator.

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